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DIPHTHERIA—A CLINICAL STUDY.[1]

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EMPHASIZING the importance of diphtheria and its perfect understanding by physicians, it is only necessary to consider for a moment its constant prevalence and its fatality, as shown by the mortality reports of all cities. In Denver, for example, it has, during the past five years, caused from five to ten per cent. of the total number of deaths. The following table gives the exact figures:

Year.	Total deaths.	Diphtheria deaths.	Croup deaths.	Per cent. of deaths due to diphtheria.	Per cent. of deaths due to diph. and croup
1888	1729	77	43	4.5	7
1889	1808	77	28	4.3	5.8
1890	2530	210	50	8.3	10.6
1891	2118	145	30	6.8	8.25
1892[2]	1578	75	9	4.75	5.3

A rough estimate of the percentage of fatal cases may be made from a consideration of the number of reported cases of sickness and the number of deaths. There were 440 cases of diphtheria reported during 1891, with 145 deaths, a mortality of 33 per cent.; adding croup there were 470 cases, with 175 deaths, a mortality of 38 per cent. During the first eleven months of 1892 there occurred 281 cases of diphtheria, with 75 deaths, a mortality of 26 per cent.; or, adding croup, there were 290 cases, with 84 deaths, a mortality of 29 per cent. The limits of this paper prevent any proper consideration of sanitary precautions for the prevention of diphtheria, which will be reserved for a future time.

The recent literature of diphtheria all tends toward a more certain understanding of its nature and more definite objects to be attained by treatment.

Jonathan Hutchinson voices the opinion of ultra-conservatism when, admitting the weight of the facts in reference to germs causing this disease, he says that he "is not yet convinced that they cause it." Bacteriologic investigators, on the other hand, are ready to prematurely credit the clinical phenomena to one germ only, and to call only those cases in which it is present "true diphtheria"—classifying all other cases, though clinically similar and equally fatal, as "pseudo-diphtheria," or as some other variety of anginose condition.

It is not unreasonable to assert that similar pathologic and clinical phenomena may be caused by a number of different organisms, existing separately or in company. No one of these germs is to be regarded as the sole and specific organism; one may be less malevolent than the other; but the disease which it causes is clinically indistinguishable from that due to the other germ—it is equally contagious; the malevolent condition may at any time be added to the benevolent form; therefore, the disease is diphtheria, and is to be so classed for treatment and for hygienic precautions.

A fairly accurate definition is this: The disease-process or combination of processes known to us as diphtheria is both infectious and contagious. Its cause is an albuminous material of intensely poisonous character resulting from the growth, usually within the body or upon one of its surfaces, of any of the following microörganisms: 1, the bacillus diphtheriæ of Klebs and Loeffler; 2, the streptococcus diphtheriæ of Prudden; 3, a simple micrococcus resembling that described by Roux and Yersin.

These germs and the products of their activity give rise to a series of clinical phenomena so similar as to be practically indistinguishable. The ordinary genesis of the disease is probably as follows: 1. The germ obtains lodgment upon some mucous surface of the body, most usually in the upper respiratory passages, as a rule upon the posterior pharyngeal wall, in the palatine folds, on the tonsils, or in the nose (these localities are named in the order of frequency of primary involvement), and less frequently in the larynx. 2. The germ finding suitable pabulum grows and multiplies theron, and, as a result of its growth, the toxic albuminous body characteristic of the disease is formed and set free. 3. A series of local pathologic changes then occur, as follows: The epithelial covering of the mucous membrane is devitalized and cast off, and almost coincidentally a fibrinous exudate occurs, which, according to the

[1] A paper read before the Denver and Arapahoe Medical Society, December 13, 1892.

[2] First eleven months.

rapidity of its formation, may or may not hold the dead epithelium in its meshes, and according to the concentration and virulence of the toxic albumin or "toxin," may or may not invade the basement membrane and deeper tissues underlying the mucous surface. 4. From this distinctly local disease-focus there now occurs absorption of all of the products of the pathologic processes there occurring; the toxic products of the diphtheria-germ (bacillus, streptococcus, or micrococcus, as the case may be) are accompanied into the blood and into the lymphatics by the toxins of those other swarming microörganisms which, as a rule, coexist, and which multiply readily in the necrotic tissues; sometimes the germs themselves find their way into the circulation, infecting both the blood and distant organs and structures.

As a result of this systemic invasion there occurs, usually, although not with absolute regularity, general malaise, anorexia, perhaps nausea and vomiting, rise of temperature, increased pulse-rate, lowered blood-pressure, and weakened heart-action; the excretory organs may be affected in a manner ranging from absolute stimulation to complete paralysis; the bowels are usually inactive. These clinical features are far from constant, and some of them are of little significance as compared with their relative importance in other diseases. Thus, in my experience, the rise of temperature means almost nothing in diphtheria, while the circulatory changes are of supreme importance. Certain of the clinical changes are of greater or less intensity and of greater or less importance, according to the saturation of the system with pathologic products other than the specific toxins of diphtheria. It is certain that these other products, originating in a necrotic process are identical with those of ordinary septicemia; the clinical phenomena are exactly similar to those of ordinary septicemia, and emphasize the point which is of so great importance in reference to a proper understanding of the nature of diphtheria and its proper treatment, viz., that it is a septic disease. Or, perhaps a more accurate expression of the fact is that diphtheria pure and simple, a result of intoxication of the system with diphtheria-germs or their toxic albumins, is almost invariably accompanied by septicemia due to the absorption of other septic and necrotic products.

As already stated, the febrile conditions are not constant; neither are they found to exist coincidentally to such an extent as in other diseases; *e. g.*, the temperature may remain constantly normal or subnormal, while the pulse will range from 120 to 160 per minute. Then the rapid pulse of diphtheria is almost never full and bounding, but is almost always weak and compressible, often thready. Even when febrile conditions are marked there is a strange absence of delirium; in fact it is often noted that patients, especially children, suffering from fatal forms of diphtheria are rational up to the moment of death, thinking, speaking, and planning in the most connected and sensible manner, and, as a rule, recognizing the approach of the great change and absolutely welcoming it. When the septic conditions are most intense, coma occurs. It has been determined that coma is probably due to an albuminous body existing in the germ and not formed as a result of its growth. This body is acid in reaction, of the nature of a protein, and differs radically from the toxins. The manner in which this body is set free—if it is set free—and the way in which it acts—if it does act—to produce the characteristic coma of diphtheria, are not as yet known. I am inclined to think that the further study of this problem and of the reciprocal actions and physiologic influences of these organic bodies may yet yield information of value in regard to the development of the antitoxin of diphtheria.

Returning, however, to the local lesion, which is worthy of extended observation and investigation, usually described and often existing as a yellow or grayish-yellow membrane, I have observed it more frequently in the beginning as a pearly-gray pellicle of extreme tenuity, often simulating the condition due to edema of the mucous and sub-mucous tissues. At other times a tiny patch resembles muco-pus filling a crypt in one of the tonsils, or hidden in the palatine recess, from which as a center it spreads quickly. Again, a slender, filmy, gray line appears first, crossing the tonsil at an irregular angle or hidden in one of the faucial folds. A favorite location is the posterior surface of the naso-pharynx, where the germ is really most likely to lodge, impinging there at the point from which the incoming air-current is deflected downward. The beginning membrane is not readily discovered at this point, being hidden from view by the soft palate. Vocalization and the coincident rise of the palatal curtain will often reveal a hitherto hidden patch of membrane.

The rapidity of the extension of the membrane is quite variable. In some few cases the first-observed patch, film, or line, will remain stationary and of doubtful character for as long a period as thirty-six hours; more usually it spreads, so that in twenty-four hours an area of one or two square inches is covered; while more rarely it increases with alarming rapidity in the course of a few hours, so that a spot which in the early afternoon seemed insignificant or of doubtful character has by early evening become a dense necrotic mass, filling the whole of the fauces, obstructing the posterior nares, preventing deglutition and interfering with respiration. The little patient sits up in bed with the mouth open, partly for facility in respiration, partly because the

swelling of the tonsils and cervical glands has become so great and so painful as to prevent the closing of the jaws. Thus in a few hours the local condition may become so serious as to endanger life, even although the systemic invasion has not yet been great. Cases of this class are, as a rule, rapidly fatal. The membrane thus early obtaining vantage-ground, extends rapidly both upward and downward, the nose becomes filled with a dense fibrinous mass, totally occluding its caliber and of such consistency that it can with difficulty be bored through with an ordinary probe; laryngeal stenosis occurs early, and the patient dies in less than seventy-two hours, regardless of the means adopted for relief. Intubation and tracheotomy seem to be equally valueless in these overwhelming cases, for after the first twelve hours the absorption of toxins and of septic material from the great necrotic mass covering and filling pharynx, nose, and larynx, is so great and so rapid that the blood is practically disorganized, the nervous system overwhelmed, the heart enfeebled beyond aid, and death is almost inevitable.

Rapid membrane-extension, such as is here described, is probably dependent upon three causes; (*a*) intensity or virulence of the poison, which may be due to high vitality or activity of the germ or to an especially favorable medium existing for its growth, the secretions of the individual being at the time in condition to furnish a good cultivation-fluid; (*b*) erosion of the epithelial covering of the mucous membrane; this condition may pre-exist or may be furnished at the time by ill-advised local medication with remedies which devitalize the epithelial cells and thus denude the mucous membrane; (*c*) idiosyncrasy of the patient. In some families, diphtheria occurs at periods remote from each other, the hygienic conditions differing at each time, but the type of the disease in the family is almost invariably the same, and the patients almost invariably die. The members of some families possibly have a lowered resisting power, both of the local cells to the germ, and of the system to the poison. The recurrence of the malignant type of the disease in some families can only be explained by some such supposition. I have observed that the members of such families, while otherwise perfectly healthy, seem to have a tendency to catarrhal inflammations of the mucous membranes of the digestive and genito-urinary tracts as well as of the respiratory passages.

The usual factors of fatality-causation in diphtheria may be stated as follows:

1. Extensive involvement of mucous surfaces.
2. Rapid absorption of disease-products and consequent constitutional poisoning.
3. Laryngeal stenosis.
4. Pre-existing conditions that lessen the resisting power of the system.

Practically, the second and third factors are dependent upon the first, viz.: Extensive involvement of mucous surfaces; and the preponderating influence of this factor in causing death is very forcibly shown in the following analysis of cases in which I have preserved a record of the extent of membrane-formation.

CASES NOTED—128.

Location of membrane.	No. of cases.	No. of deaths.	Per ct. dying.	Per ct. of all.
Fauces only	44	1	2	34
" and palate	29	1	3.5	23
	73	2	3	57
Fauces and tongue	3	0	0	2
" and nose	24	4	16.67	18
" and larynx	2	2	100	1.67
" nose, and larynx	15	12	80	11
" " larynx, and ears	1	1	100	—
" " and eyes	3	2	66	—
" " larynx, eyes, and ears	1	100	2	—
" " and bowels	1	1	100	—
Palate only	2	0	0	—
Tongue only	1	0	0	—
Membrane not visible	2	0	0	—
	128	25	19.5	
Nose involved	45	21	47	35
Larynx involved	19	16	84	15
Eyes "	4	3	75	3
Ears "	2	2	100	—
Bowels involved	1	1	100	—
Cases not treated	11	7	64	—
" treated	117	18	15 33	—

The causes of death were as follows: Septic intoxication, 8; laryngeal stenosis, 7; cardiac paralysis, 6; hemorrhage from the bowels, 1; suppurative nephritis, 1; unknown, 2; total, 25.

In the one hundred and twenty-eight cases, operative interference on account of laryngeal stenosis seemed to be demanded, and was proposed, in nine cases. Five declined operation, and all died, three of the stenosis and two of septicemia. One accepted, but operation was deferred, and ultimate recovery ensued without it. Three were operated upon, two by tracheotomy and one by intubation, and all died. Each of these patients was practically moribund before operation was permitted.

It will be noted that only three laryngeal cases recovered, and that of the fatal cases, all but four had nasal and all but nine had laryngeal involvement. That this fatality is largely due to the extent of membrane from which absorption can take place is evidenced by the fact that only seven deaths occurred from a local cause (laryngeal stenosis), while sixteen deaths were due directly or indirectly to septic conditions.

In only five cases, or four per cent. of the number of which notes were preserved, were the fauces free from membrane; in two of the five, no membrane

was visible at any time; in two it appeared only on the hard palate; and in one it was visible only under the tongue.

Of eighty-one cases in which membrane was limited to the fauces, the palate, and the tongue, but two died; while of forty-seven cases in which the nose and larynx were involved, twenty-three, or forty-nine per cent. died. Of nineteen having laryngeal membrane, seven died of stenosis; deducting these, we find that nine of twelve died of septic intoxication and cardiac paralysis, conditions due directly to the absorption of material from the local disease-focus. Of the nasal cases, twenty-one of forty-five (or forty-seven per cent.) died, a somewhat lower rate on account of the greater accessibility of the nasal cavity to treatment, but still a large number of deaths.

The four cases in which the membrane is recorded as appearing on the tongue are of special interest. The first was in a child two years old; the disease was ushered in by a severe convulsion, during which he bit the tongue almost in two. The membrane developed on the wounded surface and on the dorsum of the tongue. The other three cases were all in adults and all in one family; the membrane was a well-defined persistent patch under the tongue. Each of the patients had previously nursed a patient ill with the disease, and, although warned of the danger, persisted in reading books and magazines that had been in the sick-room from the beginning of the illness in the house. They had the habit of moistening the thumb under the tongue, preparatory to turning the leaves of the book. All four patients recovered.

The four cases in which the eyes were involved were of especial interest, as the process seemed in each case to spread through the lachrymal duct. Three of them died when the palpebral conjunctiva had been invaded; the fourth one recovered, affording me the undesirable opportunity of observing the progress of the destructive processes in both eyes. The left eye was first involved, membrane-formation having evidently taken place already in the duct, which was occluded from distention of the sac. The lower lid and then the upper one was invaded, followed by the ocular conjunctiva, which was rapidly covered, the membrane advancing with rapidity from periphery to center, suddenly choking off the nutritive supply of the cornea and causing it to slough forty-eight hours after the first invasion of the eye.

The sequence of events as observed on the conjunctiva of the lids was as follows: An intense hyperemia, then, twelve hours later, a roughened, granular appearance, with apparent epithelial desquamation; this being quickly followed by marked anemia (perhaps only the deceptive appearance of the forming translucent veil of membrane). Twelve hours later there was a well-formed membrane, about one-sixteenth of an inch in thickness, lining the entire surface of both eyelids, and beginning to push on to the ocular conjunctiva.

In the right eye the changes were a little slower, but in practically the same order. Increased intra-ocular tension was noted by Dr. Chase, who had kindly attended the case with me, and immediate preparations were made for paracentesis; but, before we could return, rupture had occurred, and the cornea also ultimately sloughed in part.

When recovery from the general disease occurred it was noted that a small portion of the lower segment of the cornea remained, and there was a dim perception of light. Dr. Chase kindly kept the eye under treatment, and proposed making an effort to form a new pupil, but the family removed to St. Louis, and all trace of the patient was lost.

This, and one of the fatal cases involving the eyes, had scarlatina immediately antecedent to their diphtheria, and the nose was seriously involved in all four cases.

The two fatal cases, in which membrane appeared in the ears, were also accompanied by nasal involvement, and the membrane extended through the Eustachian tubes, perforated the drum-membrane, and pushed out through the external meatus. Several other cases—all fatal—had middle-ear suppuration and perforation as a result, but a well-defined membrane was only detected in the two cases recorded.

The case of diphtheric enteritis recorded was under my personal observation, but not attended to by me. The patient was eleven years old, and the membrane was present in the fauces and in the nose. Intestinal hemorrhage was first noted on the fifth day of the disease, increasing in amount and frequency until death occurred on the morning of the seventh day. The blood was dark-colored and had the same foul odor noticed on the breath in those cases in which the faucial membrane is thick and gangrenous.

One death, credited to laryngeal stenosis, occurred under the following circumstances: There was no membrane in the larynx, but an extensive and tough one in the fauces. About the sixth day this began to separate; a large piece loosened spontaneously, flapped down, was drawn into the larynx during inspiration, and the boy choked to death.

In two instances I have observed erysipelas coincident with diphtheria, and one of these patients, a young man, seventeen years old (Case LX), recovering perfectly from both his erysipelas and diphtheria, was immediately attacked by characteristic typhoid fever with all the classical signs and symptoms: rose-spots, typhoid tongue, sordes,

typhoid temperature, tympanites, and ileo-colic pain, dying of intestinal hemorrhage in the third week of the typhoid fever.

Diphtheria is a disease of childhood rather than of adult life, as the following analysis of cases, according to age, will show:

1 year and under,	8 patients.	5 died.	62.5 per cent.
Over 1 year, not over 2,	12 "	3 "	25 "
" 2 years, " 3,	9 "	3 "	33.3 "
" 3 " " 4,	10 "	2 "	20 "
" 4 " " 5,	11 "	5 "	46 "
" 5 " " 10,	32 "	5 "	16 "
" 10 " " 15,	12 "	1 "	8 "
" 15 " " 20,	10 "		
" 20 " " 30,	16 "		
" 30 " " 40,	5 "		
45 years of age,	1 patient.	Recovered.	
47 " "	1 "	Died.	
52 " "	1 "	Recovered.	
	128	25	

Fifty of 128, or 40 per cent., were under five years of age, and 18 of the 50, or 36 per cent., died.

Eighty-two of 128, or 65 per cent., were under ten years of age, and 23 of them, or 28 per cent., died.

Ninety-four of 128, or 75 per cent., were under fifteen years old, and 24 of them, or 26 per cent., died.

There were 34 patients above fifteen years of age, and of them but one died. This was a man, forty-seven years of age, of dissipated habits, the disease well advanced before he came under treatment, and he died suddenly of cardiac paralysis when apparently convalescent.

The causes of increased prevalence and increased mortality among children are various. A sore-throat is usually not recognized and treated so early in a child as in an adult; treatment, when begun, is more difficult to carry out efficiently and thoroughly; the resisting power of the child's organism is less than that of the adult. The preponderance of fatality among very young children (under one year) is very marked, especially when we consider their comparative immunity from the disease. It will be noted that there were but eight cases of one year old and under. The youngest patient in the series was eight months old. It is a comparatively rare occurrence for nursing babes to contract diphtheria, even when exposed to it. But of those who do take it an extremely large percentage die; five of eight such cases, or 62.5 per cent., under my own care, died. Most of these very young patients live but a short time after their illness is recognized.

THE RELATIONSHIP OF SCARLET FEVER AND DIPHTHERIA.

The streptococcus diphtheriæ of Prudden cannot be distinguished by its physical characters from the streptococcus that causes scarlet fever, or from the one that causes erysipelas. It is not impossible that the same germ may have a different life-history under different circumstances; that environment may cause it, after many generations, to be endowed with new properties, malevolent or benevolent, as the case may be.

It seems probable that the streptococcus of diphtheria more commonly occurs in connection with scarlatina, and one observer (Heubner) is quoted as maintaining that what he calls "scarlet-fever diphtheria" is not so severe as ordinary diphtheria, that the tissue-necrosis is not so marked, and that laryngeal stenosis and paralysis very rarely result from it.

In the cases upon which this study is based there were 23 that occurred coincidently with or immediately following scarlatina, and 6 (25 per cent.) of these cases died, all but one evidently dying of the diphtheria. The nose was involved 9 times in the 23 cases and the larynx 4 times. In addition, 15 persons who had been exposed to scarlatina or to scarlatina diphtheria contracted diphtheria evidently of the common form, without any scarlatinal complication, and of the 15 one died. The nose was involved 3 times, and the larynx not at all in these 15 cases.

I have been told that in Bremen and Stockholm there occurs an overwhelmingly large number of the variety of cases which require intubation or tracheotomy in order to avoid a fatal termination of the case within a few hours of the onset of the disease. The percentage of such cases occurring here is small. The literature of the subject seems to show that in New York and Boston operative interference on account of laryngeal stenosis is called for oftener and earlier than it is in Denver. It seems possible that these cases are of the variety due to the more malevolent germ, said to be the Klebs-Loeffler bacillus, while a great portion, though of course not all, of the cases of slower onset and milder manifestations, are due to the less malevolent germ, probably the streptococcus.

The grayish or yellowish-white pellicle that so often covers the tonsils from about the third to the seventh day of scarlet fever may not always be a diphtheric membrane; yet I am inclined to think that it usually is, and when the pellicle spreads on to the hard palate and clings there persistently for many days, recurring as quickly as it is removed; when it thickens into a grayish mass, pultaceous on the surface and harder beneath, and accompanied by its peculiar sickening odor of decomposition; when, preceded by an acrid discharge which erodes both mucous membrane and skin, it enters the nose and there thickens until it occludes the whole cavity, perhaps pushing—ashy or even black in color—out of the nostrils on to the lip; when it creeps through the lachrymal duct out of the

puncta, lines the conjunctival sac, and chokes off the nutrient vessels of the cornea; when it passes along the Eustachian tube, breaks through the tympanic membrane and makes its appearance in the external ear; when it passes down into the larynx, covers the cords, and, occluding the glottis or slipping down in thinner form, invades the bronchi to their minutest subdivisions; then, whether it has preceded, or succeeded, or accompanied scarlatina, I recognize it as diphtheria, capable of spreading the contagion of diphtheria, with or without any accompanying disease, and of communicating diphtheria to persons who have previously suffered from and thus been made immune to the accompanying scarlatina.

There is a variety of deposit on the tonsils during scarlatina which, developing in the throat at the height of the anginose inflammation, disappears in a few days, never having at any time attained any great thickness, not spreading to any great extent, and usually capable of being easily removed with a swab. This I have not classed as diphtheria. But membrane of the more truly diphtheric type often occurs at this time, or its occurrence may antedate the appearance of the rash by several days, or even a week; or again, membrane may suddenly make its appearance during the eruption, or after the efflorescence has subsided and desquamation has far advanced.

It is peculiar that this truly diphtheric process occurs often in persons who have only been exposed to ordinary scarlatina, there being no diphtheria existing at the time in the neighborhood, the patients affected having previously suffered from scarlatina. Examples of this fact are Cases VII, XXVI and XVII of the series reported in this paper. They were exposed to scarlatina simplex, but took diphtheria; one developed a rash four days after having membrane in his throat. Cases IV and V, who had previously suffered from scarlet fever, contracted simple diphtheria of a malignant type from such an exposure. Case LXXV, a mother who had suffered from scarlet fever in childhood, nursed her children (Cases LXXIII and LXXIV), suffering from scarlet fever complicated with diphtheria, and contracted diphtheria alone. Both children died of cardiac paralysis. The mother had membrane in the nose and on the palate to within an inch of the teeth, had palatal paralysis as a sequence, and was a long time in regaining her strength.

It would have been interesting to have had a bacteriologic examination in these three cases to determine whether the infection was from the streptococcus, or the bacillus, or from both at once.

Case CV was a woman who had scarlet fever in childhood, nursed her two children through scarlatina simplex, and was immediately taken down with a severe type of diphtheria.

Cases CVI and CVII were a mother and child in a family four other members of which had just recovered from simple uncomplicated scarlatina. The fifth child, exposed only to the scarlatina, contracted both this disease and diphtheria. The mother contracted diphtheria alone.

Case CIX contracted diphtheria from Case VIII, which was one of laryngeal diphtheria.

Case CXV contracted diphtheria from Case CX, one of simple diphtheria of the fauces and palate. These four cases were placed in the same room in the hospital; the room had not had a case of scarlet fever in it for many months, and it had been thoroughly fumigated with sulphur and scrubbed with corrosive sublimate solution about once each month for a year. And yet Cases CIX and CXV, exposed to and suffering from diphtheria, were simultaneously attacked by scarlet fever. Both had albumin in the urine. Both desquamated. Case CIX died of suppurative nephritis, having apparently entirely convalesced from both his diphtheria and scarlet fever. I have included this death in the series of cases herewith reported as due to diphtheria.

These clinical testimonies to the apparent relationship or affinity of the two disease-processes might be multiplied, but multiplication of this simple testimony does not elucidate anything. May we not hope that careful and systematic bacteriologic study of cases may yet enable us to understand the rationale of the relationship, and simplify diagnosis, treatment, and prevention?

THE IDENTITY OF MEMBRANOUS CROUP AND LARYNGEAL DIPHTHERIA.

The lessening frequency with which membraneous croup appears in our mortality reports seems to indicate that this disease is either dying out or that practitioners are calling the condition formerly so designated by another name.

In all of my professional work, as student, as hospital resident and as practitioner, it has never been my fortune to see, either in my own practice or in that of my professional friends, a case that I could call one of membranous croup, *i. e.*, a non-infecting stenosis of the larynx, due to membrane-formation, as it is described in the text-books. I have seen cases that were called membranous croup, but with the diagnosis of which I did not and could not agree. The following cases are cited as examples:

CASE I.—A young man now twenty years old. Every slight cold affects his throat. He has frequent attacks of tonsillitis and occasionally laryngitis of a catarrhal nature. His parents state that he had frequent attacks of greater severity in his

earlier years, accompanied by a "croupy cough." He would sit down to a meal feeling perfectly well; an attack would come on while he was eating; and he would almost die. Dr. W—— said it was membranous croup, and often he arrived just in time to save Harry's life. This is a case in which the patient's present condition offers a lucid explanation of the frequently recurring attacks of "membranous croup" in his earlier years.

He was finally cured of his "membranous croup" by the frequent administration of a home-remedy containing alum, sulphur, and molasses.

CASE II.—A child three years old, seen in consultation with Dr. Bryant. It had a slight cold, and was suddenly taken with difficult, "crowing" respiration, rough, croupy cough, the ribs drawn in and the interspaces not filling out.

In this case the symptoms seemed typical of what is ordinarily called membranous croup, and tracheotomy seemed inevitable. Small fine râles were discovered all over both lungs, and inhalations of water vapor and of slaking lime seemed to relieve the difficulty of breathing, so that operative procedures were postponed for a day.

At the end of this time the laryngeal symptoms had greatly ameliorated, and disappeared entirely after a few days. No membrane was ever expectorated, but there was considerable bronchitis, with mucous expectoration. The case was plainly one of catarrhal laryngitis, and our diagnosis of membrane obstructing the larynx was premature and a mistake.

CASE III occurred in a child just removed from a day-nursery, where it had been in the same room with four other children, all of whom had been attacked with diphtheria, and all of whom died. Two of the four had membrane in the larynx as well as in the fauces, and the other two had nasal involvement. This case, the fifth child, was suddenly seized with laryngeal symptoms and died after a very short illness. The attending physician certified the cause of death to be membranous croup. It seems to me almost certain, when I consider the intimate association of the patient with the four fatal cases, and its death in a few days after theirs, that the real case of death was laryngeal diphtheria.

CASE IV.—The first of the four fatal cases referred to as being removed from the day-nursery. The attending physician informed the board of managers of the institution that it was suffering from membranous croup, and they, in consequence, were greatly amused at the precautions taken by the Health Department to prevent the spread of the disease. The patient came under my care at quarantine, and was a typical case of diphtheria. The membrane involved the fauces, palate, and larynx, and the child died after seventy-two hours' illness, having been tracheotomized six hours before death, which was due to heart-paralysis.

CASE V.—A boy two years old was suddenly attacked one evening with difficult respiration and croupy cough, having complained for a day of what the parents regarded as a common cold. I was called hurriedly, and found the child black in the face and almost dead.

I was tempted to tracheotomize at once, but the subcutaneous injection of apomorphine caused prompt emesis, and the child's respiration improved. Turpeth mineral and calomel were administered in one-grain doses every fifteen minutes; the vomiting continued, the spasm of the larynx relaxed, and he became much better. The throat was carefully examined, and no membrane could be detected; but in spite of this the child seemed critically ill. The next day examination revealed a typical diphtheric membrane that had appeared since the preceding evening and covered both tonsils. It spread rapidly, covered the palate and advanced into the nose. For five days the little patient's condition was extremely precarious; then improvement began, and the membrane entirely disappeared in thirteen days after the date of the original attack. After the first evening there was no apparent laryngeal involvement.

There can be no doubt that this case presented all the classical symptoms of membranous croup the evening it was first attacked, and if death had occurred (and it seemed imminent), most practitioners would have certified to that as the cause of death. The subsequent history of the case, however, showed that the initial attack of laryngitis was probably only functional, occurring as the ushering-in symptom of an attack of diphtheria.

CASE VI.—A child, aged one and a half years, a brother of Case LI, which died two weeks previously. Another sister had also died of a most pernicious form of diphtheria one week before. This babe was nursed by its mother, who was also nurse for the two children who died. It was taken ill, and died in twenty-four hours of so-called "membranous croup."

CASE VII.—Into a house next to one in which diphtheria occurred one year ago, the premises of both being in a very filthy condition, a new family moves. After a week one child is taken sick and dies in twenty-four hours with what the physician calls "pseudo-membranous laryngitis." The same day a second child is taken ill with the same complaint, and dies in thirty-six hours. In the second case there is membrane visible in the fauces. The physician calls it "contagious membranous laryngitis" but says it is not diphtheria, although he regards it as being "quite as contagious as diphtheria."

Cases similar to the last two might be multiplied almost indefinitely from the records of the Health Department; a death from "membranous croup" being reported immediately before or immediately after several cases of diphtheria have occured in the same house or in an intimately associated family. Perhaps these occurrences only emphasize the cautionary admonition of Cohen and Eshner in their recent work on medical diagnosis, that "until a physician acquires considerable experience he had best consider all cases of membranous croup as diphtheritic." Yet, in my experience, older practitioners more frequently than younger ones pronounce laryngeal diphtheria to be "croup," and I am inclined to

regard the admonition quoted as catering too much to the fallacious belief which dignifies a symptom with the individuality of a disease.

One may not absolutely deny the possible existence of a non-infectious membranous laryngitis, for the condition would be a parallel one to that which exists in membranous bronchitis and enteritis. These diseases are, however, wonderfully rare, while the majority of believers in membranous croup rate it as a comparatively common disease.

Very recently Fraenkel published a paper detailing the results of autopsies on four cases of so-called primary or non-infectious membranous croup. In all, the mucous membrane of the pharynx and tonsils was intact, the disease-process being limited to the larynx, and in all the laryngeal membrane was found to contain the Klebs-Loeffler bacillus, the identity of which was proved, first, by staining, second, by culture-experiments, and, third, by the inoculation of animals. Still later, Martin of Paris found the Loeffler bacillus in 21 of 34 cases of croup, in which there was no membrane in the fauces. *Query:* Were the other 13 non-diphtheric?

Very important, as bearing on this particular point, is Prudden's case: One child died of a disease pronounced by the attending physician to be "croup, and not diphtheria," and Prudden himself failed to find either the bacillus or streptococcus of diphtheria in the membranes. However, a few days later, a second child of the same family died, presenting all the constitutional and local signs of diphtheria, "and the streptococci were found, not only in the membrane but in the viscera." Even the failure to find the diphtheria-germ in all cases is thus shown to be not positive or final testimony as to the non-contagious character of the disease; clinical evidence is equally important, and is very properly a supplement to, or supplemented by, bacteriologic investigation.

THE RELATIONSHIP OF DIPHTHERIA AND FOLLICULAR TONSILLITIS.

Occasionally that common and readily-identified disease, follicular tonsillitis, occurs epidemically and in a somewhat modified form. It has been asserted that when it so occurs it is really diphtheria. It would seem that there could be but one method of settling this question, namely, by bacteriologic examination of a large number of such cases. The type of follicular tonsillitis is so common and so readily studied, that it is a matter of some surprise that such an investigation has not already been made.

Clinical arguments against the supposed identity of the two conditions are, however, almost conclusive. In families or in institutions in which follicular tonsillitis prevails, all the cases are follicular; none develops extensive membrane; the nose is never involved; none of the patients dies. It is possible for a patient with this disease to be seriously sick, but the febrile conditions are almost constant in their occurrence and relationship; high temperature for a day or two is common, and it accompanies a full, bounding, rapid pulse; delirium may be coincident; when the febrile conditions subside they do so by crisis; circulation and temperature return to the normal at once and together. What a contrast to the progress and relationship of the febrile conditions, as already described, existing in diphtheria?

Of course, it is possible for diphtheric infection to be added to a previously existing follicular tonsillitis, but in such a case the clinical picture will change quickly, and it will always be noted that any immediately succeeding cases are typically diphtheric, both in incipiency and in progress. The follicular feature does not persist and manifest itself in subsequent cases after real diphtheria has made its appearance.

The deposit of follicular tonsillitis is a secretion, modified and unhealthy, perhaps, but still a secretion, and hence readily removed without harm to the underlying tissues. In sharp contrast is the diphtheric membrane, which is a fibrinous exudate upon a previously eroded surface, from which it cannot be removed without violence.

This distinguishing feature is all-important in the diagnosis, which is rarely difficult. If real doubt exist, twelve or twenty-four hours at most will suffice to clear it up. However, the fictitious credit attaching itself to the supposed rapid "cure" of cases of this kind has proved a strong incentive to some practitioners to pronounce as diphtheria all cases of follicular tonsillitis. This practice is most common in communities in which cases are not reported to the health-officers, and in which the premises are not placarded, and no quarantine is enforced.

A last argument against their identity is this: The diphtheric membrane ordinarily begins at one spot or location, from which, as a center, it spreads with a rapidity that is often alarming. Given a dozen or more foci (as would be the case if each follicle in the tonsil were a center from which the membrane could spread), and the rapidity of extension would be astounding. This would, indeed, be the most terrible and fatal form of diphtheria, by reason of the favorable circumstances attending its incipiency.

But the facts show that follicular tonsillitis is so seldom fatal that we may really say that it never kills, unless there exists some peculiar cachexia or other modifying condition of the patient.

The question of the identity of diphtheria and follicular tonsillitis may then be dismissed as unworthy of serious consideration.

(To be concluded.)

NEUROTIC ECZEMA.[1]

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IN the *Medical Record* of July 9, 1892, I published an article entitled, "A Study of Neurotic Eczema in Adults." The manuscript of that paper was placed in the hands of the publishers in March, 1892. Since that time I have continued my work and investigations upon this subject, and have been led to elaborate in some instances, and in many important particulars to change my views as formerly expressed regarding the etiology of this division of eczema.

The study of the relation of nervous disturbances to affections of the skin is not of recent origin, though systematic investigation in this direction has, so far, been undertaken by only a few dermatologists. Various authorities have indeed referred, at intervals, to the evidences of such relation, but in many cases only a reference was made. Among the pioneers may be mentioned Purdon,[2] Bastard,[3] Marracci[4] and Colominatti,[5] who in the years 1878 and 1879 reported cases of eczema in which various disturbances of the nervous system, or nerve-lesions, preceeded or accompanied the eruption, which seemed to depend on it.

Hebra taught that among other causes of eczema "faulty innervation" was often to be considered; Kaposi, that under certain circumstances, eczema must be considered as *neuropathic*. Wilson gave *nutritive and nervous debility* as a predisposing cause. Schwimmer, in his monograph, *Die Neuropathischen Dermatonosen*, 1885, seems to take the ground that the majority of cases of eczema depend on tropho-neurotic disturbance. Kopp, on the other hand, in a monograph entitled *Die Trophoneurosen der Haut*, 1886, denies tropho-neurotic influence and is inclined to ascribe all eczematous eruptions to external irritation.

Crocker refers to vasomotor influence in an indefinite way as a probable cause of occasional eczema. Bulkley,[6] in his article, "Relation of Eczema to Disturbance of the Nervous System," ascribes many cases of eczema to "nervous disturbance."

Elliot[7] read a paper before the last meeting of the American Medical Association, in which he gave the name *reflex neurotic eczema* to a certain type of eczema occurring in babies and young children. He pointed out in this eruption peculiarities in location, grouping of the lesions, and course of the disease which are constant and which point to reflex nervous disturbance as the cause of the eruption. This, I think, is the first instance in which a variety of eczema has been isolated and described under the title of "neurotic."

In the cases related in this paper there are certain peculiarities of location, arrangement of individual lesions, and course of the eruption, which, together with the accompanying nervous disturbance and exclusion of external irritation, seem to warrant the recognition of a neurotic eczema.

It is the purpose of this paper to prove its existence as a distinct subdivision of eczema; to point out the character of the lesions and to state the grounds upon which the classification is advocated.

The discussion of a few typical cases may lead to a better appreciation of the subject. Owing to the length of the histories only the important features will be mentioned.[1]

CASE I.—Female servant, aged fifty-five, passed the climacteric five years ago; among other disorders connected with this period, had an eruption on the face, similar, as she stated, to that now evident. It disappeared after four weeks' duration. She has been free from eruptions of any kind until eighteen months ago. Six months previously to the present outbreak the patient returned to Ireland, and during the journey and stay was subjected to exposure and a great deal of mental worry on account of death in her family and other troubles. She also contracted malaria while there, and has had frequent malarial attacks since her return; at such times she is unusually constipated and suffers from insomnia and nervousness. The eruption is worse after these attacks. The appetite and digestion are good. Constipation is present at all times.

The eruption is situated on the lower two-thirds of the forearms and legs, and is rather more distinctly shown on the extensor than on the flexor surfaces, on the upper surfaces of the hands and feet, and is symmetrical.

The eruption is characterized by patches, circular or round in shape, and composed of vesicles or papules (or both) with intervals of healthy skin. The patches show all stages of inflammation, from unbroken vesicles and papules to raw exuding surfaces, or infiltrated and covered with crusts or fine scales. Each patch is limited by a line of papules or vesicles, and the division between healthy and diseased skin is sharp and absolute. (In a few instances there were observed outlying papules, or groups of from three to ten, but in no case was there observed that gradual fading of the eruption around the periphery observed in eczema as ordinarily encountered.) At all stages of the disease the pruritus has been intense.

CASE II.—A male, a weaver, aged thirty-five,

[1] Read before the Pittsburg Academy of Medicine, January 23, 1893.

[2] Union Medicale, 1878.

[3] Journal of Cutaneous Med., 1878.

[4] Giorn. Ital. delle Mal. della Pelle, 1878.

[5] Ibid., 1879.

[6] THE MEDICAL NEWS, January 31 and February 7, 1891.

[7] Int. Med. Mag., October, 1892.

[1] The cases given were taken from Dr. L. D. Bulkley's clinic at the New York Skin and Cancer Hospital, by permission of Dr. Geo. T. Elliot, under whose care they were.

no previous history obtained; suffered from constipation, obstinate and prolonged, and was "nervous and irritable." The eruption is located on the dorsum and interdigital spaces of the fingers and on the back of each wrist. Between the fingers the skin is sodden, but the inflammation is sharply defined at the edge of the patch. On the back of each wrist is a large, rounded, sharply-defined patch, moist and inflamed, the edges composed of vesicles and papules. The patch is infiltrated and the pruritus is excessive.

CASE III.—A male, longshoreman, aged thirty, with no previous history other than that the eruption has appeared at various times since childhood on his hands and legs, each time being symmetrical. His habits are irregular. He is constipated. The eruption is located on the backs of the hands, and consists of circumscribed patches formed of papules and vesicles closely aggregated. Some are irritated and moist, others are crusted. It is absolutely symmetrical, and the pruritus is excessive. He improved under treatment, but left the clinic before a cure was effected. He returned in two months with "elevated and inflamed moist patches, symmetrically situated along the ulnar border of the forearms and back of the hands." He remained at the clinic until discharged cured, but returned again in two months[1] "with patches of all sizes and shapes more or less inflamed," on the extensor surface of the wrists, hands, and forearms.

CASE IV.—Female, a servant, aged forty-three, without previous history. Constipation and nervousness are noted. The eruption is located on the extensor surface of the hands and wrists, and lately on the extensor surface of the legs. The eruption is characterized by groups of papules and vesicles of various sizes, forming patches, circular in the main, with sharply-defined edges, moist and irritated in character.

CASE V.—Male, a surveyor, aged twenty-four, who is out of doors on duty most of the time. His stomach is irritable, and he has to eat cold food, which brings on attacks of indigestion and increases his nervousness. He has not been free from the eruption for the past year. He has obstinate constipation, occasional indigestion, and nervousness. The eruption is on the cheeks and forehead, and there is a circumscribed patch on each cheek, 1½ inches in diameter, composed of closely aggregated papules, sharply defined. On the forehead are a number of similar circumscribed patches, containing from ten to thirty papules.

CASE VI.—A female, married, aged thirty-eight. The eruption has been present for ten years. She has complained of a tired listless feeling for some time. She is anemic, nervous, and has been constipated for a long time. The eruption is located on the cheeks and forehead, each cheek presenting a large circumscribed patch composed of thickly-set papules, with considerable thickening and scaling. On the forehead are a number of similar patches presenting the same characters as those on the cheeks, though there is less thickening of the skin.

[1] Dr. Geo. T. Elliot's notes, made from his record of this case.

CASE VII.—A male, a pauper, aged sixty-three. Until five years ago the patient was a fairly prosperous broker, when he lost all his property in speculation. He has no relatives living, and since then he has been dependent on charity. His health is wrecked, and he presents many symptoms of disseminated sclerosis of the cord. The outbreak of the eruption was preceded by great mental anxiety. He also has constipation. The eruption is located over the deltoid region, on the extensor surfaces of the arms and forearms, on the front of the thighs and knees, and around the circumference of the legs, being rather more marked on the extensor than on the flexor surfaces. There are patches composed of thickly set papules, circumscribed, scattered over the surface named, dry and scaling in character. The pruritis is intense.

CASE VIII.—A schoolboy, aged thirteen, has had eruptions since early childhood. He suffers from asthma when near the seashore, at which time the eruption is worse. His general health is excellent, and he has no constipation. The eruption is on the cheeks, the extensor surfaces of the arms and forearms, the front of the thighs and *back* of the legs. The patches are more or less circular, sharply defined, moist or scaling, or simply formed of papules in the primary stage, according to duration.

In the foregoing histories the following points seem worthy of note:

1st. The most striking peculiarity is the symmetrical disposition of the lesions. In many cases the symmetry is absolute, in others approximate, but in every case corresponding parts of the body on each side are found to be affected.

2d. The eruption tends to attack localities not as a rule liable to eczema in its primary state, *i. e.*, the extensor surface of the extremities.

3d. The arrangement of the lesions differs markedly from that usually observed in eczema. The lesions are not scattered indiscriminately over the affected area, but are grouped into patches, which are more or less circular. These patches are composed of closely aggregated papules and vesicles; the edges are sharply defined, and usually made up of a line of papules or vesicles. The periphery remains distinct, sharply defined, and absolute at all stages.

4th. The spread of the eruption is never affected by a gradual extension of the area of the diseased patches, but by the formation of new lesions or patches, in every respect retaining the characteristics of the older ones.

5th. The dissolution of a patch is accomplished not by a gradual shrinking of the diseased area, but by a decrease of inflammation, the original area remaining the same in extent.

6th. The eruption has a tendency to frequent relapses, for which often no adequate cause can be ascertained, and this in spite of the most careful attention.

7th. The pruritus is most intense.

Before entering upon a discussion of the etiology it may be well to give a short *résumé*.

1st. Previous, mental worry or nervous exhaustion of longer or shorter duration is noted in Cases I, II, IV, V, VI, and VII. (Insomnia and "nervousness" or "irritability" are included under this head.)

2d. Various functional irregularities and chronic constipation are noted in Cases I, II, III, IV, V, VI, and VII. Occasional indigestion in Case V.

3d. Complications: Asthma is noted in Case VIII; multiple sclerosis in Case VII; malaria in Case I; anemia in Case VI.

4th. External irritating conditions: Exposure to heat and cold in Cases III and V; exposure to irritating soaps and alkalies, presumably from occupation, in Cases I, IV, V, and VI.

5th. Locations attacked: Face, in Cases V, VI, and VIII; extensor surfaces of hands, wrists or arms, Cases I, II, III, IV, VII, and VIII; extensor surfaces of legs, thighs or feet, etc., Cases I, III, (previously IV, VII, and VIII); flexor surfaces, in Cases I, VII, and VIII, leg. (In each case, with the exception of Case VIII, after appearing on the extensor surfaces).

In studying this *résumé* we are impressed by the facts that in only three instances were the flexor surfaces involved; in two of these slightly; and that in *all* of the cases the eruption appeared here after first appearing on the extensor surfaces. In some other instances the eruption appears on surfaces liable to irritation from various causes, but in only a small number of these was there a history of exposure to such influences.

Considering external influences somewhat in detail, we find that Cases III and V were exposed to ordinary variations of heat and cold incident to an out-door life; so that the evidence of their influence here is not conclusive, probably serving only as of irritation after the eruption commenced, sources and hence should not be properly considered causative.

In Cases I, IV, and VI there was, from the nature of the occupation, presumable exposure to moisture, irritating soaps and alkalies, and in two of these (I and IV) the eruption appeared on parts naturally exposed to the action of such agents. But on examining the lesions we find that the appearance is not that usually presented by an irritative eczema. In no case is the palm involved, and in only one case (I) the flexor surface, and here it appears after being established on the extensor surface. Moreover, there is a tendency for the lesions to appear in separate and sharply defined *patches*, with intervals of healthy skin. This would not be the case were external irritation an important factor in the etiology, but instead we should have a more or less papular or vesicular eruption over the whole surface so exposed. In Case VI the question of external influence may be dismissed with the observation that the parts exposed to irritating agencies were not involved, but the face instead. I think, therefore, we may exclude external conditions as a factor in the production of this eruption, and give them prominence only as complicating, by irritation, after its establishment.

Of the functional irregularities, the most frequent was indigestion or irritability of the stomach, which was found in two instances. Whatever influence may be exerted by this condition must be reflex, and, except in chronic indigestion, is not of sufficiently long duration to cause the morbid changes seen in eczema. On the other hand it will readily be admitted that its influence is powerful after the establishment of the eruption, when the hypersensitive nerves and nerve-centers easily respond to a very slight stimulus.

Chronic constipation was noted in seven of the eight cases, and is probably a fruitful cause of the disturbance. Theoretically we may explain this action in one of two ways.

1. By reflex irritation, or 2, by irritation of both the central nervous system and peripheral nerves, in consequence of the retention in the blood of irritating alkaloids or products of digestion.

Asthma was noted in one instance, Case VIII, but as to its influence I am in doubt. It has long been noticed that this affection occasionally occurs as a complication of eczema, but as yet no satisfactory explanation has been offered. Similarity in etiology probably exists.

Multiple sclerosis is noted in only one Case (VII), and though I hesitate to ascribe too much importance to its influence, I am forced to believe that it is of some weight. The case in question was extremely obstinate, and resisted all treatment. It is very probable that the sclerosed papules acted as local irritants to adjacent portions of the cord. The significance of this irritation is shown by the theories promulgated in Gowers's work concerning the trophic functions of the cord in relation to the skin, *i. e.*, "it is probable that there is progressive representation (sensory) of the skin in the posterior nerve-cells of the cord." It is true that, as a rule, sensation is but slightly effected in multiple sclerosis; still these islands of sclerosed tissue may produce irritation in the posterior tracts, and thus render the sensory nerves more responsive to irritation. Gowers further states that the nutrition of the skin[1] "seems to depend on nerves which have their course in the posterior roots." Therefore, it seems

[1] Gowers: Manual of Diseases of the Nervous System. 1892.

probable that irritation in the posterior roots would produce trophic lesions in the skin which would be shown in the eczematous inflammation.

In addition to the multiple sclerosis, which may be considered rather as an interesting complication than a cause, there were certain functional irregularities.

Malaria was noted in one case (I), and, although this cannot be definitely isolated as a primary cause, it is certain that a symmetrical peripheral neuritis, whose pathology and symptoms are as yet but indefinitely recorded, may be due to such agents, organic or alkaloidal in character, as are contained in the blood in malaria.

This symmetrical peripheral neuritis is probably influential not only in the production of the lesions, but also in determining the location of the affection.

Anemia was found in only one case (VI). Its action, if any, is chiefly predisposing, not to eczema especially, but the debility consequent upon or leading to anemia necessarily lessens the resisting power of any tissue to irritation, local or reflex.

Previous mental anxiety or an existing state of nervous depression is found in the histories of six of the eight cases. Its importance cannot be overestimated. Bulkley[1] lays great stress on this point, and gives many clinical examples in which it is found to be a "predisposing element," or "exists in connection with other nervous conditions which act as the exciting cause of the eruption." Kopp admits the importance of this factor, but claims that it is chiefly predisposing. Gowers[2] referring to "spontaneous" sensations of the skin, such as itching, burning, tingling, etc., without visible lesion, classes them among the functional disturbances of the cord, and includes the very varied range of symptoms under the head of neurasthenia, which may be described as functional disease of the cord. There is enfeeblement of the general nervous system, and consequently impaired nutrition of the cord, from which follow perverted trophic functions and readier response to local or reflex irritation. In discussing the etiology of neurasthenia he says: "It should be remembered that mental anxiety is a potent cause of disease of the nervous system."

Now, eczema is an inflammation of the skin, and, as such, must be due to irritation. The irritation may ordinarily be accomplished in one or more of three ways.

1. By external conditions. 2. By direct action upon the tissues of noxious substances contained in the blood, either in the process of excretion or by being deposited in the tissues. 3. By action of the nerves supplied to the inflamed parts.

[1] THE MEDICAL NEWS, Jan. 31, 1891: "Relation of Eczema to Disturbance of the Nervous System."

[2] Gowers: Manual of Diseases of the Nervous System, 1892.

That it is not due to the first I think I have fairly demonstrated in the discussion of the *résumé* under the head of external influences. That it is not due to the second may be inferred from the grouped arrangement of the lesions, its symmetry of location, manner of spreading, and manner of healing. We have an example of eczema due to (presumably) direct action of noxious substances contained in the blood or the tissues. I refer to the so-called "gouty eczema," due to retention in the system of acids and from improper action of the kidneys. The spreading of this eczema takes place by peripheral extension, and healing occurs by noticeable peripheral contraction of a patch. Moreover, symmetry of location noticeable in neurotic eczema is rarely seen in gouty eczema.

For these reasons I ascribe to the variety under discussion a neurotic etiology. In considering this source of irritation we may examine in turn the various parts of the nervous system as follows:

1. Vasomotor or sympathetic system.
2. Sensory nerves and tracts of the cord.
3. The trophic centers of the cord, and
4. The reflex phenomena and their significance.

The part played by the vasomotor system is, I believe, mainly secondary. We may readily recognize disturbance in this quarter by the redness and slight swelling of the inflamed patches; yet evidence is lacking to show that simple dilatation or contraction of the bloodvessels, of however long duration, results in such permanent changes in the skin as we observe in eczema. In regard to the sympathetic system we have one report[1] of an autopsy from Prof. Michelani's clinic, in which, at the post-mortem of a patient suffering from universal eczema and who had died of pneumonia, "the upper cervical and celiac ganglia were fonnd markedly hyperemic, with cloudy swelling of the nerve-cells and marked pigmentation in the intercellular tissue."

As the same condition will be found in persons dying of pneumonia or typhoid fever, or in fact from any acute inflammation in parts situated near these ganglia, I fail to see that it is of much importance. At this time so little is known concerning the normal histology and physiology of the sympathetics that it would be unwise to speak decidedly for or against their influence. But as yet I see no reason to ascribe the eczematous eruption to their influence. The trophic centers for the skin, as before stated, seem to be situated in the posterior columns of the cord, or, according to Gowers, "the nutrition of the skin seems to depend on nerves which have their course in the posterior roots." It would probably be better to dismiss entirely the terms "trophic nerves and centers" and to accept the plausible

[1] Morrocci: Giorn. Ital. delle Mal. della Pelle.

theory of this author, that "nerve-endings have a structural continuity with the tissues supplied by them," and hence that the nutrition of the tissue is determined in its character by that of the nerve. By accepting this theory we reduce our consideration to two points—the spinal cord and the sensory nerves.

In regard to the spinal cord, it has been conclusively shown that the nutrition of a nerve is presided over or governed by certain ganglia or centers at its root. Now, if it is shown that the proper action of these centers is interfered with or hindered in any way by certain conditions, whether by local inflammation or irritation from other points, it would necessarily follow that a trophic disturbance of greater or less intensity would follow in the course of the nerve. And as the tissues are practically continuations of the nerves, and the nutritional energy diminishes as the distance from centers increases,[1] it seems most probable that this trophic disturbance would evince itself in the tissues.

We have seen that mental worry or shock can and does cause this perverted functional action of the cord, and have clinical examples[2] before us of the occurrence of eczema in this connection; while instances are not wanting of eczema occurring as a result of local inflammation in the posterior columns of the cord and confined to areas supplied by certain nerves.[3]

In connection with the spinal cord we may consider reflex phenomena. Owing to our lack of accurate knowledge as to the physiology of *reflex* inflammation, our opinions as to this question must be purely theoretic. We have seen that a large number of the cases here reported were associated with chronic constipation; some with indigestion more or less chronic. It is a fact that with improvement or relapse of these conditions a corresponding improvement or exacerbation of the eruption was observed, though not in so great a degree. Elliot,[4] speaking of the neurotic eczema of children, which agrees with that one in older persons in many particulars, says: "I do not see how the symptoms in the skin could be explained except on that basis (reflex origin), where we observe the eruption responding immediately to the development of an irritation in a distant portion of the body; varying in degree according to the intensity and persistency of the irritation; agreeing in its evolution and involution accurately with the changes in the character of the latter; disappearing with its removal and relapsing with its recrudescence." The same is true in part of the variety here considered. In adults the variations are not so marked, and, when the source of reflex irritation is associated with functional nervous disorder the removal of the source of irritation regarded as reflex does not result in the disappearance of the eruption. In view of this fact I am inclined to believe that the results of reflex irritation and nervous exhaustion are the same in regard to their action on the cord, *i.e.*, both produce more or less irritation of the trophic centers which results in perverted functional action. Whether this irritation is an actual inflammation or not I am not prepared to state, but in results it is practically the same.

Should further investigation prove that inflammation does actually exist, then the significance of *reflex irritation* will be made plain.

In regard to the sensory nerves, their participation is shown by the intense itching present in the affected area from the beginning of the eruption. This feature, while it is only a complication, or a symptom, if you please, denotes, from its early occurrence, I think, either a primary affection of the sensory nerves or an irritation of the sensory centers, already mentioned, at an early stage of the disease.

I notice, in Gowers's work on *Nervous Diseases*, a description of a form of *multiple neuritis*, symmetrical in location, after the general type of lead poisoning which tends, by preference, to attack the nerves supplied to the extensor muscles and tissues covering them, and which, according to this author, is rare and always due to "a morbid blood-state having direct influence on nerve-tissue." This morbid blood-state seems to consist in the presence of some virus or organic substance to which the nerve-fibers are susceptible. Among these substances are malarial germs, products of constipation and indigestion (ptomaïnes, etc.), certain metallic poisons, etc., of which the first two classes are encountered among our cases. Various trophic disturbances follow and are apparently due to this neuritis, especially in the muscles, more rarely in the skin. This neuritis is not persistent after the cause is removed, but disappears in time, the nerve resuming nearly, if not quite, its normal condition, and the functional activity of the nerve is rarely entirely destroyed.

In 1879 Colomiatti[1] reported a number of cases of eczema in which, on microscopic examination there were found material changes in the nerves supplied to the affected parts; while in cases which had been cured he found the nerves nearly or quite restored to the original state. Leloir[2] was able to verify these statements in 1890.

[1] Gowers: Treatise on Nervous Diseases, 1892.

[2] Bulkley: THE MEDICAL NEWS, Philadelphia, January and February, 1891; Bastard: Journal of Cutaneous Medicine, London, 1878.

[3] Purdon: Union Médicale, 1878.

[4] International Medical Magazine, October, 1892: "Reflex Eczema in Babies and Young Children."

[1] Giorn. Ital. delle Mal. della Pelle, 1879.

[2] Annales de Dermat. et de Syph., 1890.

Now, as to the connection between neurotic eczema and multiple neuritis of this type I desire to point out a few points of interest. This neurotic eczema is rare, and is found often in connection with chronic constipation, sometimes with malaria, the same being true of the neuritis. The neuritis is symmetrical and tends to attack nerves supplied to extensor surfaces, while the lesions of neurotic eczema are symmetrical and tend to involve extensor surfaces. Pain, which is noted by Gowers, is absent in this form of eczema, but there is intense pruritis.[1]

The circumscribed character of the eczema is also strongly in favor of the theory that in some cases, at least, the peripheral inflammation of the nerve causes the trophic disturbances in the skin, and, consequently, only the parts supplied by this nerve are affected.

Schwimmer,[2] in discussing Colomiatti's report, makes the following comment: "Contributions of this kind demonstrate that a nerve-lesion may be followed directly by the eruption of eczema, which was formerly known only of erythema, urticaria, and herpetic eruptions;" also that "the nerve-fibers themselves show a process of degeneration in the course of eczema." As a similar degeneration is sometimes seen in nerves supplied to inflamed tissues, it remains in doubt whether the neuritis, when observed with eczema, "is due to the intensity of the inflammation in neighboring tissues,"[3] or whether the eczema is the result of the neuritis. From the fact that the neuritis often occurs independently of eczema I am inclined to the latter view, inasmuch as this offers some explanation for the location of the eruption on the extensor surface, while if the former were true it seems probable that the eruption would attack flexor surfaces instead. Moreover, the fact that the intense pruritis is present from the beginning is an argument in favor of the latter view.

From the foregoing study I have come to the following conclusions:

1. That there is a variety of eczema due to nervous disturbance, which may be recognized by the following characteristics:

a. Grouping of the lesions in circumscribed patches, sharply separated from adjoining healthy skin.

b. Symmetry of the eruption as a whole.

c. Preference for the extensor surfaces of the extremities.

d. Absence of peripheral spreading or contraction of the separate patches.

2. That the nervous disturbance is a perverted functional action of the "trophic centers" in the cord; and probably in some cases a peripheral neuritis.

3. That reflex irritation—from various functional irregularities, mental anxiety, neurasthenia, etc.—are important predisposing factors.

WESTINGHOUSE BUILDING.

[1] Bulkley cites one case in which acute pain preceded every outbreak of the eruption. THE MEDICAL NEWS, February 7, 1891: "On the Relation of Eczema to Disturbances of the Nervous System."

[2] Neuropathischen Dermatonenrosen, 1883.

[3] Die Trophoneurosen der Haut: Carl Kopp, 1886.

AIDS TO THE ADOPTION OF THE METRIC SYSTEM IN PRESCRIPTION-WRITING.

BY ELI H. LONG, M.D.,

ADJUNCT PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, UNIVERSITY OF BUFFALO; PROFESSOR OF MATERIA MEDICA, BUFFALO COLLEGE OF PHARMACY.

THE question of the practical use of the metric system by physicians is coming at the present time to assume considerable importance. We are upon the eve of the issue of the new United States Pharmacopeia, in which all quantities will be expressed in metric terms, a feature that was adopted after full and free discussion by the representative physicians and pharmacists who composed the pharmacopeial convention. This step in advance will never be retraced; therefore, the sooner we take our stand accordingly the better.

Enough has been said in discussion of the new system, and the verdict seems to be that it is unquestionably superior to any other, mainly because it is simpler. This paper, therefore, takes for granted the desirability of its more general use, and aims to meet practically some of the difficulties and objections that stand in the way of its adoption.

The chief difficulty lies in the fact that we do our thinking in the system of weights and measures most familiar to us, so that all, except those who have early and thoroughly learned the metric system, must practically do their calculating for a time in the old system. The practical American sees little utility in a system that requires a mental translation at every turn; hence the indifference to the superiority of the metric system among the members of our profession.

I am convinced that in order to meet this difficulty we must simplify the relation between the two systems so as to reduce to a minimum the necessity of translation and calculation. And so effectually can this be done that to master the application of the metric system to prescription-writing need be a matter only of a very few moments' thought, even to those who have employed the old system for years. The plan here given has, by extensive use in class-work, been found fully adequate.

We begin by making the number of doses in our prescription correspond with the number of grains

in a gram. As there are between *fifteen* and *sixteen* grains in a gram, either of these numbers[1] can represent the whole number of doses. This being determined, we find that the *same figure* that expresses the *single dose* of any ingredient *in grains* expresses also its *total quantity* in *grams*. The following will illustrate this, the same rule obtaining as well with *minims* as with *cubic centimeters*:

	Grams or c. c.	
℞.—Potassii bromidi (single dose 10 grains)	10	
Morphinæ sulphatis (single dose ¼ grain)		25
Spiritus ætheris nitrosi (single dose 30 minims)	30	
Aquæ q. s. ad (16 teaspoonful doses)	60	

M. Sig., etc.

Observing the cardinal rule that the number of doses shall equal the number of grains in a gram, or of minims in a cubic centimeter, we find that sixteen 10-grain doses amount to about 10 grams; sixteen ¼-grain doses amount to about ¼ or 0.25 of a gram; sixteen 30-minim doses amount to about 30 cubic centimeters. When the single dose is a fraction of a grain the latter requires simply to be expressed in decimal form under the same rule.

The simplicity of the plan appears at once. It is necessary only to determine the single dose of any ingredient in grains or minims and write the number down as expressing the whole quantity in grams or cubic centimeters. It follows that, instead of being a difficult system to use, the metric system requires much less effort than writing according to the old system, for the reason that calculation and multiplication of doses are entirely done away with.

Sixteen doses are quite sufficient in most cases for one prescription, and the quantity of the dose, whether a teaspoonful, a dessertspoonful, or a tablespoonful, is immaterial so long as the number of doses is the same. If, however, it is desired to order twice the number of doses, it simply requires to double the number expressing the quantity in case of each ingredient; or, if half the number of doses is wanted, to order one-half of the quantities which the rule would give.

Another objection sometimes offered is that the bottles in present use are not of proper sizes for convenient metric quantities. But the plan here advanced would exactly suit the present sizes of bottles; thus, sixteen teaspoonful doses will make two fluidounces; sixteen dessertspoonfuls, four fluidounces, and sixteen tablespoonfuls, eight fluidounces.

In prescribing powders or pills the same rule applies as for fluids, for example:

	Grams or c. c.	
℞.—Pulveris ipecacuanhæ et opii (single dose 5 grains)	5	
Pulveris digitalis (single dose 1 grain)	1	
Strychninæ sulphatis (single dose $\frac{1}{60}$ grain)		02

Misce et divide in chartulas numero xvj.

[1] One gram equals 15.43 grains, while one cubic centimeter measures 16.23 minims. Therefore, if one number is adopted for both liquids and solids, 16 is the better one. In case of ordering pills, powders, or other solids, 15 would be more nearly accurate.

The ordering of fifteen or sixteen doses always establishes the relation between the two systems, which permits us to apply the rule that has been demonstrated and which may be fully stated thus:

1. *Make the whole quantity to consist of sixteen doses;* then, 2. *The number that represents the single dose of an ingredient in grains or minims will express the required quantity of that ingredient in grams or cubic centimeters.*

It may be objected to this rule that it does not render one independent of the old system. This is true at first, but in learning a new system of any kind the most effectual way is to come practically into contact with it. This is what we accomplish by thus linking the two systems together, and the result must be that we soon acquire a familiarity with the simpler, new system, and the ability to use it independently will be only a matter of time.

Another objection to the use of the metric system, one that may be valid as applied to some sections, but which must be regarded as much an excuse as an objection when applied to cities, is that some risk of error is incurred on account of dispensing pharmacists being unfamiliar with the system. This objection is met by the fact that the handbook of the pharmacist, the new United States Pharmacopeia, is to employ the metric system exclusively, which fact gives evidence that the pharmacal profession is fully abreast, if not in advance of the medical, in respect to the matter under consideration; otherwise the Pharmacopeia would hardly show this advance. Indeed, if the comparison be a fair one, we shall find among representative pharmacists and physicians more pharmacists than physicians practically conversant with the metric system.

Therefore, and in cities especially, no one need fear to send a prescription in metric terms to any *first-class* pharmacy.

CLINICAL MEMORANDA.

REPORT OF THE TREATMENT OF A CASE OF FRACTURE OF THE FEMUR DURING DELIVERY.

BY LEROY W. HUBBARD, A.M., M.D.,
OF NEW YORK CITY.

IF we judge from the published reports of cases, we must conclude that fracture of the femur during delivery is a rare accident in obstetrics. I have been unable to find reports of more than three cases, and all of these occurred during the present century.

The first case was that of J. H. Vander Veer.[1] The child was extremely large, weighing fourteen pounds, and presented by the breech. The left thigh was bent back and sideways in the uterus. The delivery seems to have

[1] N. Y. Journ. of Med., 1847, vol. viii, p. 378.

occurred without much interference on the part of the physician and without accident except cessation of pulsation in the cord due to retention of the head. After delivery it was noticed that the left thigh was motionless, and an examination showed a false point of motion without crepitus.

The method of treatment is not given in detail, but nine days after delivery, the inflammation and swelling had increased very much, the bandages were loose owing to constant motion, and the thigh was flexed or semi-flexed on the abomen. As to the result, "the union was better than expected."

In Dr. Jas. Young's[1] case the fracture was not discovered for two weeks after delivery, and then only because continual crying on the part of the child led to an examination. Pasteboard splints were applied and kept on for six weeks. The comment was: "Rare and troublesome case and difficult to keep clean." As to the final result nothing is said. This case was a perfectly normal delivery, the head presenting, and the pertinent question is asked: "How was the leg fractured, and when?"

Dr. E. N. Chapman[2] reports a case that also occurred in a normal labor. The fracture was at the junction of the upper and middle thirds of the thigh, and crepitation was present. He employed a sole-leather splint, which was kept on for fourteen days, and the result seems to have been good, for he reports "no shortening, and difficult to locate the fracture."

The fact that the femur may be fractured in a normal labor and that the accident can occur quite easily in a breech-presentation when even precaution is taken, may perhaps be sufficient reason for presenting a short report of a case. I am further influenced by the statements of two of the gentlemen who reported their cases, that it was exceedingly difficult to keep the fragments in apposition and to keep the child clean.

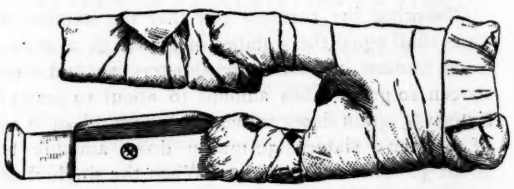
On June 15th, 1892, I was requested by a colleague in a neighboring city to see with him, in consultation, a baby who had been born the day before with a fractured thigh.

I made an appointment for the following day, and then began to study a plan of treatment. Realizing the difficulty, as expressed by the gentlemen quoted, of applying to a child of that age extension or coaptation splints which could be kept in place or would not become so readily soiled as to make frequent change necessary, I was for some time puzzled.

During my service at Bellevue Hospital I had treated a fractured thigh in a baby a few weeks old by placing it upon a board and making extension by means of adhesive plaster and rubber bands. The result was excellent, and during the treatment it was quite easy to keep the child clean. I determined to try the same method in this case, with some modifications. Keeping in mind the approximate size of a newborn child, I cut out a pattern and took it to a carpenter, who made under my direction an apparatus illustrated herewith in Figs. 1 and 2. The main part consisted of a piece of half-inch board, cut in shape resembling the trunk and lower limbs of a child. Upon the edges of each extremity narrow strips were fastened, making shallow troughs, and to each was attached a sliding foot-piece which could be regulated by means of a thumb-screw.

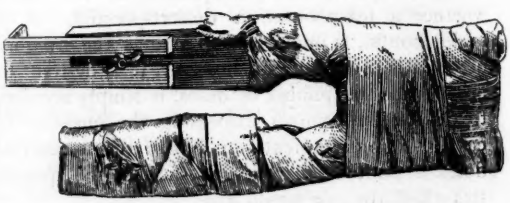
On the following day I saw my patient, a healthy, well-formed, vigorous boy—in consultation with the family physician. The mother, a primipara, had carried the child to full term, the breech presented, and the labor being prolonged with prolapse of the cord, which ceased to pulsate, it was necessary to extract the child somewhat rapidly. Apparently no undue force was used, but my friend discovered after delivery that the left thigh had sustained a fracture at the junction of the upper and middle thirds.

FIG. 1.



Examination showed the thigh to be swollen, the flesh being hard and tense. When undisturbed, the child lay with the limb drawn up in a position of flexion, abduction, and external rotation, and was quiet; but any attempt to move it evidently caused pain and was met with a muscular resistance which was remarkable in a child o that age. There was marked deformity and a false point of motion, but no crepitus. By making steady traction on the lower portion of the thigh, the body being firmly held, the muscular resistance was gradually overcome and the limb could be placed in a good position. When this was accomplished the child ceased crying.

FIG. 2.



The body and thigh portions of the apparatus were now thickly padded with cotton held in place by turns of a roller bandage, and I then applied to the leg and thigh below the seat of fracture two narrow strips of rubber adhesive plaster, and to the lower end of each attaching a loop of stout cord; the whole being held in place by a roller bandage carefully stitched. The baby was then placed upon the board and the body firmly secured to it by a bandage, and the leg troughs thickly padded with cotton. Through each loop of cord I passed double a rubber elastic band used by stationers, and slipped the double end over a screw in the upright of the sliding foot-piece. By drawing this down and fastening it with the thumb-screw the fragments could be brought into apposition and held there by elastic tension, in case the body of the child slipped any. For additional security and to keep the ends of the bone from riding up, owing to the vigorous movements of the child, a strip of plaster was carried over the thigh and the whole limb secured

[1] Trans. Edinburgh Obstet. Soc., 1875, 3, 127.
[2] Med. and Surg. Reporter, Phila., vol. ix, 329.

by a bandage. The uninjured limb was fastened to the other leg-piece to keep it out of the way. Fig. 3 shows the child in the apparatus. As soon as the dressing was completed he ceased to cry, became quiet, and soon contentedly nursed.

During the whole course of treatment he could be easily handled, the dressing did not become soiled with the discharges, and it was very little more trouble to take care of him than of any baby of that age. In spite of the facts that he was jaundiced, was not washed for three weeks, and that the weather most of the time was hot, he ate and slept well, thrived, and actually grew fat. It was necessary to readjust the body bandages two or three

FIG. 3.

times, owing to the wriggling of the child, and once, I believe, the family physician loosened the strip of plaster over the thigh on account of swelling. At the end of three weeks the apparatus was removed and union was found to be quite firm. There was no excoriation from the plaster or from pressure. There was a large amount of callus, but no shortening.

When I saw the child again, in August, the callus had nearly disappeared, the limb was straight, no shortening had taken place, and the union was very firm.

This method commends itself in the treatment of all fractures of the thigh in very young children, for the following reasons:

1. It is easy to reduce the deformity and keep it reduced, with the fragments in good apposition.

2. Frequent changes of dressing are not required, thus securing rest to the injured parts.

3. The apparatus and dressings can be easily kept clean, and the child can be cared for with very little more trouble than any normal and healthy child.

4. It can be quickly constructed, and its cheapness brings it within reach of all.

326 LENOX AVENUE.

GONORRHEA OF THE RECTUM.

BY GEORGE DOCK, M.D.,
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THE existence of gonorrhea of the rectum, admitted to be a rare disease by most writers, has been denied by others. Since the discovery of the gonococcus of Neisser (1879) only one case has been recorded in which that organism was found in the rectal discharges. (Frisch, *Mitth. aus der Syph. Klinik zu Würzburg*, XXV, 1891; also in Virchow-Hirsch's *Jahresbericht*, ii, 1891, 552, and *Centralbl. f. Bakt. u. Parasit.*, i, 1892, p. 11.) Other cases, not necessary to cite, have been published, without an examination of the pus, but their true gonorrheal nature has been questioned.

A good deal of the skepticism with regard to gonorrhea of the rectum is no doubt due to the ideas of some of the older writers, which have been handed down without criticism by later ones. Evidently the whole subject must be studied objectively in the light of bacteriology and, if possible, also by experiments. In the meantime, the account of a single case, even if imperfect, may do good in calling attention to the subject, and it is for this reason that I report the following:

J. P., twenty-five years old, a barber, applied at the medical clinic of the University Hospital for the treatment of spermatorrhea. The patient stated that he had had gonorrhea three years before, but that after some months the discharge ceased entirely. For a long time he believed that he had spermatorrhea, a belief probably kept up by some of the "doctors" consulted. During the ten weeks just before admission he consulted and was treated more or less by six different practitioners. The last coitus took place eight weeks before admission. Six weeks after that he began a bougie-cure for impotence, using at the same time rectal suppositories as part of the treatment. After the sound was passed the third time a muco-purulent discharge appeared at the meatus urinarius and continued up to and after admission. This was accompanied by the usual symptoms of mild gonorrhea.

The pus contained considerable numbers of gonococci having the usual morphologic and tinctorial characteristics.

Repeated examinations showed the absence of spermatorrhea, and we were about to send the patient back to his physician at home when the rectal complication was discovered.

Feeling an inclination to stool, the patient went to the closet. There he passed a few drops of watery matter, part of which he brought to my laboratory. This was examined by my assistant, Dr. Whinery, who found gonococci. This led to a careful inquiry into the history as given (some of the statements of which had been looked on with natural distrust when first given), and to a rectal examination. Although the patient had an unusual sensation in the rectum, he had not attributed much importance to it, and it is probable that had he not seen the pus no examination would have been made.

On examining the rectum by means of a bivalve speculum I found intense redness and swelling of the mucous membrane as far as the instrument reached, a distance of about four inches. The surface of the mucous membrane was finely granular, without ulcers or erosions. The inflammatory process was sharply limited in a zigzag line at the margin of the epidermic part of the anus. In the folds were masses of pus, most of them small, and in the collapsed part, just above the end of the speculum, was about half a dram of pus and mucus.

Microscopically, the pus showed the ordinary polynuclear leukocytes, with a small proportion of eosinophilous cells. It contained large numbers of diplococci, identical in size and form with those in the urethral pus and in that from other cases of gonorrhea. Some of the cocci were free; most of them, however, were contained within the leukocytes. They decolorized by Gram's method. In some parts of the pus there was apparently a pure culture of the gonococcus, in others bacilli and cocci could be found.

The patient at that time and before had no itching or

pain about the anus or rectum, no tenesmus or other unusual sensation, except the slight uneasiness, probably a feeling of fulness, as the tumefaction of the walls of the gut was quite marked. There were no constitutional symptoms except at times a very slight degree of fever.

It seems as if the infection in this case must have taken place by means of the suppositories referred to as having been employed in treatment. These were introduced at night, after dressing the glans. No antiseptics were used for the urethritis. The fingers were not introduced within the anus, except in inserting the suppositories. The case of Rollet, in which a patient with urethritis, who provoked stools by putting his fingers in the rectum, and who eventually inoculated the anus, is often quoted. (*Dict. Encyc.*, Art. "Anus: Maux Syphilitiques," p. 494.)

There seems to be no reason for doubting the patient's statements. Though extremely hypochondriacal, the man gave no history or sign of sexual perversion. There was no evidence of pederasty. He slept alone. The history of the urethral gonorrhea, it is true, is rather suspicious, though not entirely improbable. But these are not essential matters. The very obscurity of the mode of origin, in connection with the insignificant symptoms, indicates how easy it would be to overlook such a condition.

Although some writers maintain that gonorrhea of the rectum can only arise from sodomic practices, the case of Rollet constitutes an exception, and the same writer, as well as others, holds that, in women with gonorrhea, infection of the anus takes place from the spread of the discharges. A case is reported in the *Maryland Med. Journal*, June 1, 1882, in which rectal gonorrhea was observed in a woman without a history of pederasty.

It has been supposed (A. Bonnière, "Recherches nouvelles sur la Blennorrhagie," *Arch. gén. de Méd.*, April, 1874, p. 405) that the rectal mucous membrane is not inoculable with the gonorrheal virus. This view must be abandoned in view of the histologic examinations of Frisch. In my own case there could be little doubt that the specific inflammation involved all the parts visibly affected, but I could not obtain tissue in order to confirm the results of the observer just named.

The patient remained under observation several weeks. He used suppositories of iodoform, two grains each; later, small injections of creolin, 1 per cent. The redness and swelling subsided considerably. The amount of pus diminished, though there was always a good deal of it. The pus never appeared again, as on the first occasion, giving rise to a call to stool. The number of gonococci diminished slightly, the cells being less thickly filled with them.

The pus was always the same in its microscopic appearances and rather peculiar. It was pale-yellow and appeared in small lenticular bits floating in a clear, watery mucus. Numbers of these bits made up the larger masses always to be found within the rectum, between the folds.

There were never marked local symptoms, except after using the creolin, which caused burning. Later, defecation was sometimes painful. There was never excoriation or redness outside the anus, as described by the older writers.

The urethritis in this case, though not severe, was very intractable. It was not affected by zinc sulphocarbolate, and yielded very slowly and imperfectly to silver nitrate.

The chronic nature of the rectal inflammation, with the considerable swelling of the submucous tissues, led to the thought of the development of stricture. Frisch, in reporting his own case, raised the question whether many so-called luetic strictures of the rectum were not really gonorrheal, and, in the light of the case just reported, the question seems an important one. In this connection the cases reported from Baltimore (MEDICAL NEWS, August 14, 1886, p. 180) acquire a new interest. It may be possible to learn something of their later histories.

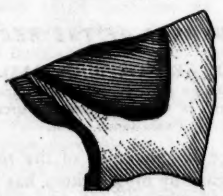
In my own case, as the patient could not be made to consider his rectal disease as more important than the imaginary ailment for which he presented himself, the later stages of the condition could not be followed.

A FOREIGN BODY IMPACTED IN THE LARYNX SEVENTEEN MONTHS; REMOVAL BY LARYNGO-TRACHEOTOMY; RECOVERY.

BY J. F. KLINEDINST, M.D.,
EYE, EAR, AND THROAT SURGEON TO YORK HOSPITAL AND DISPENSARY, YORK, PA.

L. H., thirty-nine years old, a farmer, on April 28, 1891, while cutting down a tree, was struck upon the back of the neck by a heavy falling limb and thrown to the ground. Consciousness was lost. The man was immediately picked up by his companions, carried to the house, and a physician summoned. After a half-hour consciousness returned, but there was inability to speak and complaint of a sense of suffocation. Examination of the mouth disclosed that an upper set of three artificial teeth, which the man had been wearing, was missing, and it was at once surmised he had swallowed it. His companions repaired to the place where he had fallen and there found the three artificial teeth, attached to a small piece of the broken plate, and, also, a part of the plate about the size of a pea. The greater part of the rubber plate was, however, missing.

FIG. 1.

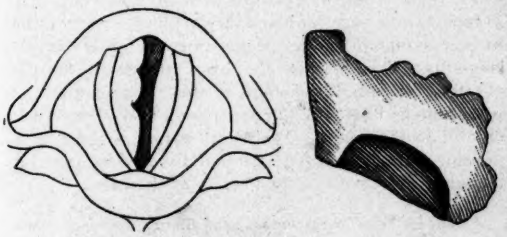


For nine days the man suffered inexpressible agony, gasping for breath, and spent most of this time sitting in a chair, not being able to lie down. At the expiration of this time, during a violent attack of coughing, with threatening suffocation, he expelled the larger part of the missing plate of rubber. (Fig. 1.) He now was greatly relieved, could breathe with more ease, and was able to sleep at night in the recumbent posture. Sleep was, however, not as sound as before the accident, for

he was awakened at times by violent attacks of coughing and a sense of suffocation, which would gradually subside, when he could resume sleep. His voice, however, had not yet returned. What had become of the remaining part of the rubber plate was a mystery. The patient was not conscious of the presence of a foreign body in his larynx. The loss of voice and the other symptoms of laryngeal irritation were attributed to the irritation resulting from the nine days' sojourn of the piece of plate and its subsequent expulsion. From this time on the man's health began to fail and his voice did not entirely return until several months later, and even then it remained husky up to the time of operation. Following the accident there had been a constant cough.

In the fall of 1891, about six months after the accident, he had repeated chills and some fever; and soon he began to expectorate muco-purulent matter and to have night-sweats; his breath also became offensive. In April, 1892, he expectorated some blood. These symptoms all seemed confirmatory of a diagnosis of tuberculosis, in which it was believed the larynx participated. Some time later the man was presented by his physician to the Medico-Pathological Society of York County, when I first saw him. He was emaciated; his complexion was sallow; his expression anxious and distressed. His breath was exceedingly offensive and of a grangrenous odor. A constant laryngeal cough was present, with muco-purulent expectoration. The temperature was slightly elevated and the pulse-beat accelerated. A physical examination of the chest revealed only bronchial râles; no cavities or consolidation in any part of either lung. The voice was husky and weak. A presumptive diagnosis of a foreign body in the larynx was made. On laryngoscopic examination the missing piece of plate was seen lying in the larynx

FIG 2. FIG 3.



in an antero-posterior direction, with its serrated edge upward and about one-eighth of an inch below the vocal bands. (Fig. 2.) An operation for its removal was advised and was performed in the presence of a number of physicians at the York Hospital, October 3, 1892.

About half an hour before the operation the patient was given a hypodermatic injection of morphine and atropine, and was then anesthetized with chloroform. The skin over the larynx and trachea having been rendered aseptic, an incision was made through skin and fascia, from about the middle of the thyroid cartilage downward about two inches and a half. After all hemorrhage was stopped an incision was made in the larynx through the crico-thyroid membrane, cricoid cartilage, and downward through the first two rings of the trachea. The edges of the wound being retracted, an angular nasal polypus-forceps was introduced upward into the larynx and grasped the piece of plate, which, after a strong pull, could not be dislodged. The forceps was withdrawn and again introduced upward, but more nearly perpendicularly, and again grasped the piece of plate; by giving the forceps a slight turn to the right, I succeeded in dislodging and removing the foreign body. (Fig. 3.) A rubber canula was then introduced into the inferior portion of the opening in the trachea. The crico-thyroid membrane, cricoid cartilage, and trachea, above the canula, were united with carbolized catgut sutures, while the skin and fascia were united with silk sutures. The usual antiseptic dressings were applied around the canula. Over the mouth of the canula was kept a thin layer of moistened sublimate gauze through which the patient could breathe.

During the time that the canula was in the trachea, the temperature of the room was kept at from 75° to 80°, and the atmosphere was charged with moisture from a kettle of boiling water. The object of having the temperature of the room so high and its atmosphere charged with moisture, was for the purpose of approximating the condition of the inspired air to that in which it would be if inspired through the nostrils. The patient's temperature, seven hours after the operation, was 100.2°, falling to 100° on the following day, and continuing thus for four days, when it began to gradually fall until the eighth day, when it reached 99.2°, where it remained until the patient was discharged.

There was not much discharge from the canula or wound, except on the day following the operation, when there was discharged from the canula some muco-pus, evidently from the situation in which the foreign body had been impacted. On the third day the canula was removed, and the opening in the trachea closed in three days by healthy granulations. The dressings were changed daily, and on the fourteenth day the patient was discharged from the hospital, with the upper portion of the wound entirely healed and the lower portion covered with a cicatrix. Upon his discharge the patient was greatly improved in appearance and color. Cough had ceased; the expectoration was changed in character; the offensiveness of the breath had disappeared; and the voice had become more clear, although still husky and weak. Four weeks after his discharge from the hospital the improvement was still more marked. The man was much stouter and had gained nineteen pounds in weight.

There are several points of interest in this case. The first that attracts attention is the remarkable tolerance, by the larynx, of a foreign body so large as the one removed. Again, the extraction of such a foreign body by means of the laryngeal forceps would have been impossible, because of its situation and the fact that it had become imbedded. The symptoms presented a striking resemblance to those of laryngeal tuberculosis, but a careful and thorough examination was sufficient to disprove such a diagnosis. Finally, the case demonstrates the point that when a foreign body is impacted below the rima glottidis the only safe and proper method of extraction is by tracheotomy or, preferably, laryngo-tracheotomy, which does not entail any serious injury upon the vocal apparatus.

MEDICAL PROGRESS.

A Complicated Labor.—BEUGNIES (*Journal de Méd. de Paris*, vol. v, ser. 2. No. 8, p. 95) has reported the case of a primipara, twenty-two years old, who had been in labor for forty-eight hours, in consequence of dystocia dependent upon pelvic narrowing. The cord was prolapsed and the child was dead. The head was at the superior strait, and could not be dislodged by means of the forceps, even after peforation of the vault of the cranium. With the forceps still applied to the fetal head, symphysiotomy was performed and the child extracted. Incisions were made on either side of the vulvar outlet to facilitate the delivery of the head. The principles of antisepsis had been rigorously observed, although the surroundings had been most unfavorable. There was considerable hemorrhage. The symphysis was reunited by means of a strong silk suture. The patient did well for a day or two; then the temperature began to rise, the respiration became accelerated, diarrhea set in, and the wound and the vagina presented manifestations of gangrenous lymphangitis, to which pneumonia of the left base became superadded, and the woman succumbed on the fifteenth day after the operation.

The Transmission of Cholera through the Intermediation of Flies.—SAWTSCHENKO (*Centralbl. f. Bakteriologie u. Parasitenk.*, xii, 25, p. 893), has found that virulent cholera-bacilli appear for at least four days in the intestinal canal and dejections of flies that have been fed cultures of cholera-bacilli or the intestinal contents of cholera-patients or cholera-victims. There is evidence not only that the bacilli pass through, but also that they undergo multiplication in the intestinal tract of the flies. The greater the interval between the time of infection and the examination of the excrement, the smaller the number of saprophytic organisms found and the larger that of the cholera-bacilli. Control-experiments with the excrement of flies that were not exposed to infection gave negative results. It would thus seem demonstrated that flies may act not only as the carriers, but also as the hosts of the cholera-infection. This fact will, perhaps, explain the occurrence of epidemics during dry and hot weather, as well as a relative diminution in the number of cases after a heavy rainfall or decline in temperature.

A Delicate Test for the Presence of Albumin in Urine.—SPIEGLER (*Centralbl. f. klin. Medicin*, No. 3, 1893, p. 49) has modified the formula originally proposed by him for the detection of minute quantities of albumin in the urine (see THE NEWS, August 27, 1892, p. 246) by substituting glycerin for sugar, as the former is less readily reduced than the latter, and the resulting solution is the more permanently active. The modified formula, then, contains: Tartaric acid, 1 part; mercuric chlorid, 2 parts; glycerin, 20 parts; and distilled water, 50 parts. It is claimed that 1 part of albumin in 350,000 can be detected with this solution, when fresh; and 1 part in 250,000 when the solution is not fresh. The urine must, in every instance, be first treated with concentrated acetic acid, and, if turbid, be filtered to remove the mucin present. The test is not available if the urine contain iodin in any form, as this halogen will combine with the mercury in solution and give rise to the formation of a whitish or yellowish ring at the line of contact, which, however, is soluble in alcohol.

Post-marital Amblyopia consists in failure of vision of variable intensity consequent on sexual excess. The liability of certain persons to this form of amaurosis has long been recognized, and though probably of rare occurrence, it deserves to be made widely known on account of the prognostic importance of a correct etiological deduction. In the last number of the *Archives of Surgery* MR. JONATHAN HUTCHINSON relates three very typical examples of this affection, the most remarkable feature whereof is the readiness with which it is recovered from. In this respect post-marital amblyopia presents a striking resemblance to tobacco amblyopia, of which recovery and freedom from relapse are very definite features. It differs from the latter in being much more rapid in its development and in passing to a far higher degree of amblyopia. Though recovery is the rule, it must not be forgotten that in both series cases may and do occur in which the disease advances to complete and permanent blindness.—*Medical Press and Circular.*

Symphysiotomy.—REGNIER (*Centralblatt f. Gynäkol.*, xvii, 6, p. 108) has reported the case of a deutipara, twenty-nine years old, with a flat rachitic pelvis, of which the true conjugate measured 2.88 inches. The first pregnancy terminated in the delivery of a living child at term by means of the Cesarean operation. When, at the termination of the second pregnancy, labor set in, symphysiotomy was determined upon and carried out, a separation of 2.1 inches being secured. It was deemed best to suture the symphysis by means of silver wire. The child was a male. The result was successful, both for parent and child.

A Hitherto Undescribed Symptom of Hereditary Syphilis.—CARINI (*Internationale klinische Rundschau*, vii, 1, 3 4) reports nine cases of hereditary syphilis, in which the earliest symptom of the specific infection observed was singultus. This resisted the usual treatment for the affection, but speedily yielded to the administration of potassium iodid to the nursing parent and of mercuric chlorid to the infant. The manifestation is thought to depend upon the calling into activity of a neuropathic tendency as a result of the toxicity of the blood.

A Delicate Test for the Presence of Biliary Coloring-matter in the Urine consists, according to ROSIN (*Berliner klin. Wochenschr.*, No. 5, 1893, p. 106), in overlaying a small quantity of urine with a solution of one part of tincture of iodin in ten parts of alcohol. If biliary coloring-matter be present, a grass-green ring forms at the line of contact of the two fluids; in the absence of the biliary coloring-matter urine is simply decolorized at the line of contact.

The Vitality of Comma-bacilli.—As the result of a biologic study UFFELMANN (*Berliner klin. Wochenschr.*, 1893, xxx, 7, p. 158) found that comma-bacilli possess considerable resistance to cold. They survive exposure to a temperature of 12.6° F.; the result depends upon the intensity of the cold and the duration of the exposure. A decided difference was observed in the behavior of recent and of old cultures.

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A NEW STUDY OF THE ACTION OF CHLOROFORM.

IN some recent numbers of the *British Medical Journal*[1] there is a tedious and not very lucid account of some physiologic experiments with chloroform. It is believed by DRS. GASKELL and SHORE, the authors of these studies, that their results support, if they do not prove, the following proposition: "*That the fall of blood-pressure caused by the administration of chloroform is due primarily to a weakening of the heart's action and not to paralysis of the vasomotor center.*" There is truth, undoubtedly, in this proposition, as we have had occasion to point out in a recent issue of THE NEWS. Nay, we think that proof much neater and clearer than any afforded by the papers before us exists in the *Memoirs of the French Academy of Medicine* and elsewhere in the writings of the French physiologists. But DRS. GASKELL and SHORE, our present authors, have a liking for a method the very reverse of neatness and clearness, for a method plentifully bespattered with blood and brains, for work in which lucidity is depised, in which the clear element is separated from the dense by a line "palpable to feeling as to sight."

In a prolix account we are introduced to some new and ingenious experiments. They are original with our authors, as we are told in a solemn letter,[1] and are contrived on the following plan. We quote from the *British Medical Journal*, January 28, 1893, p. 165:

"In order that chloroform, when inhaled in the ordinary way, could be carried to the brain only, or to the heart only, the circulation through the brain was separated from the general circulation, and a supply of blood obtained from another animal. . . . In general the method adopted was to connect the cerebral ends of one or both carotids of the animal whose cerebral and general circulatory systems were to be separated, and this animal we will speak of as the *fed*, and the cardiac ends of one or both carotids, which we will call the *feeder*. . . . The remaining brain arteries of the fed were ligatured. One external jugular vein of the fed animal was similarly cross-connected to the cardiac end of one external jugular of the feeder, and the other external and the two internal jugulars of the fed animal were ligatured. . . . The larger animal was, when possible, always selected for the feeder. In most cases the external carotids of the fed animal were ligatured, so that the internal carotids received all the blood derived by cross-connection with the common carotids of the feeder. In all cases an adequate supply of blood was left to the brain of the feeder, for in no case were its vertebral arteries interfered with. . . . The blood-pressure in the general circulatory systems of both animals was registered from the femoral arteries.

In the feeder the blood-pressure was generally low; in the fed, on the contrary, the blood-pressure was generally high, for in preparing this animal for the cross-circulation—

"the ascending cervical artery on the right side was ligatured, and the two carotids, which had been connected to the left carotid of the feeder, were still clamped. The left vertebral and the left subclavian were also tied, the ligature of the latter vessel, which was even placed proximal to the origin of the vertebral, being to prevent any possibility of blood passing by the ascending cervical arteries from reaching, by anastomoses, the upper part of the vertebral. Thus the right vertebral was the only vessel left for the supply of blood to the brain."

We are assured that this terrific process of cutting and clamping resulted in no evil effects, except in one case:

"where the last brain artery was, by mistake, tied before the clamps on the connected vessels were removed. The 'fall of pressure in the feeder does not always occur.' . . . The rise of blood-pressure in the fed animal reaches it maximum rather quickly, and remains fairly constant."

Lastly, we come to the following laughable statement:

"Eight cross-circulation experiments were made, three

[1] A Report on the Physiological Action of Chloroform, with a Criticism of the Second Hyderabad Chloroform Commission, by W. H. Gaskell, M.D., F.R.S., and L. E. Shore, M.D. British Medical Journal, January 21, 28, and February 4, 1893.

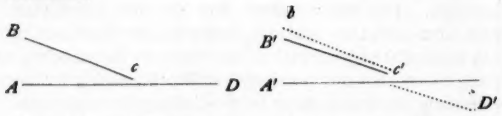
[1] Lancet, February 18, 1893, p. 386.

with two dogs, three with two rabbits, and two where the attempt was made to supply the brain of a rabbit with blood from a dog. This last procedure was unsuccessful, as the rabbit in both cases died very soon after the cross-circulation was established."

As soon as the cross-circulation, which seems to have flowed on quietly, was established, chloroform was administered to the feeder by means of a tube fixed in the trachea. In this animal the blood-pressure fell, and anesthesia supervened in 1 min. 20 sec. In the fed the blood-pressure arose, and it was observed that once, at least, the conjunctival reflex in this animal was abolished.

Now, it appears to us that results arrived at in this way are not very satisfactory. Many times in reading the present account of them we have been tempted to exclaim: "*Anceps hic et lubricus locus est.*" The authors of these curious investigations seem to be unacquainted with the limits of the experimental procedure. To them a healthy organism and a maimed organism subjected to the same stimulus will manifest identical phenomena. We think this by no means clear. As a matter of fact, such a principle is true only of physiologic experiments of the simplest kind—of experiments in which the sequence of cause and effect is obviously and necessarily plain. But in expeerimnts like those of DRS. GASKELL and SHORE, there is an element of error present, which may be shown best by an illustration from physics.

A and *B* are two known forces acting together at the point *c*, with a resultant *D*. This resultant is constant.



A' and *B'* are likewise two known forces acting together at the point *c'*, but simultaneously acting with *B'* is the unknown force *b*. The resultant cannot be the same as in the first case. The first case is that in which chloroform, represented in our illustration as the force *B*, is alone acting on the brain of a healthy animal, which we have chosen to represent as the force *A*. In the second case the conditions are the same, *A*, *B*, and *A'*, *B'*, being identical, except that there is an unknown modifying force *b*, at work with *B'*. This modifying force is composed of all those alterative influences active in an organism in process of dissolution.

But let us proceed to make this clear in another way. In any physiologic experiment, when it becomes necessary to act with an animal artificially maimed, or, to use an apt and significant phrase, with the unity of its structure and organic mechanism impaired, there is always an element of error introduced in this way, which must be reckoned with. In experiments judiciously planned and executed this element of error is so plainly and so easily calculable that no one is ever perplexed by it. Such experiments are extremely simple, and achieve great results by simple unvitiated means. They are simple, we say, because they are of such a nature and conception that there can be but one possible explanation of a single phenomenon, or order of phenomena, which are the subjects of investigation. Simplicity of conception, indeed, is the great point in any physiologic experiment, which must needs be inexact in its nature, and in its results difficult of proof. Hence, the great and signal advances in this science are made by experiments in which the sequence of cause and effect is plain, such as SIR CHARLES BELL'S or MAGENDIE'S to demonstrate the functions of the roots of the cord.

But in the experiments which form the subject of our paper the element of error is present, as might be expected, and, unfortunately for the results, cannot be stated in exact terms, being obviously indefinable and incalculable.

Again, in these experiments there is another fallacious element, a multiplicity of possible explanations of a single phenomenon, or order of phenomena; not one explanation capable of proof, but three or four, perhaps mutually exclusive. For, when, to take a pregnant instance, the question is asked: Why may not the rise of blood-pressure, which our authors have noted, be due, for one thing, to a rise of intra-cranial pressure? we are met by the following extraordinary assertions: "These experiments conclusively show that chloroform taken up by the blood in the lungs in the ordinary way and carried to the brain, only leads to a rise and not to a fall of blood-pressure." Observe that in this sentence the fed and the feeder are classed as one animal. The words: "chloroform taken up by the blood in the lungs in the ordinary way," refer to what takes place in the feeder, while the words: "carried to the brain only," refer to what takes place in the fed.

"This rise can only be due to a *direct* or *indirect* action on the vasomotor center. It cannot be due to increased intra-cranial pressure, which might be caused by more blood coming from the feeder, because it takes

place at a time when the *blood-pressure* of that animal is *tending to fall.* [Italics ours.] Again, it cannot be considered as merely dependent on a diminished supply of blood to the brain, a relative anemia, due to the *fall of the blood-pressure of the feeder*, because the *rise of pressure of the fed* is *usually* established before the *fall* in the *feeder* takes place. Again, the latter [*sic*] is, except late in the administration of the chloroform, only small in extent; while, from observations we have made on the *effect of ligature of the brain arteries successively*, it appears that a large *diminution* of the *blood-supply* of the brain needs to be made to lead to a marked and lasting rise of pressure."

Could there be found in the whole range of medical literature a more confused, absurd, and contradictory passage than this? It proves, if it proves anything at all, that chloroform causes both a rise and a fall of blood-pressure; and such, indeed, is the opinion of our authors:

"These cross-circulative experiments confirm absolutely the previous experiments in which chloroform was injected directly into the circulation. In both cases the blood containing chloroform excites the *vasomotor center and raises the blood-pressure when it reaches the medulla oblongata*, while it depresses the *heart's action and lowers the blood-pressure when it reaches the heart.*" [Italics ours.]

In these sentences, as in the others that we have quoted, the two animals of the experiment, the fed and the feeder, are classed together as one animal, as an individual in fact. The confusion here is very obvious. The excitation in the vasomotor center takes place in the fed; the action on the heart, and consequent fall of blood-pressure, in the feeder.

But even this is not accurate speaking. The excitation of the vasomotor centers, if it take place at all, must take place in both animals, but in the one animal—the fed—there is the excitation of the vasomotor center, and nothing else, and in the other animal—the feeder—there is, besides the vasomotor excitation, the action of chloroform on the heart and circulation. Can these two actions be conceived of as not influencing each other? We think not. To do so is to ignore well-known facts.[1] Besides this, the conditions of the two animals of the experiment are wholly different. We have already noted some of these differences, and there are others. There is the difference in the vascular tension; there is, also, the difference in the size and structure of the blood-corpuscles, for dogs and rabbits were both used. The effect of dog's blood on a rabbit's brain is a case so curious that we shall forbear to discuss it.

[1] See the investigations of M. Francois-Franck.

And can we then, even in fact, class the two animals of the experiment as one, and accept the result? Evidently not. The proof of this, and indeed the best proof of the unsoundness of this method of investigation is that by using the same means, the same procedure, the same organisms and stimuli, we may obtain precisely opposite results, as SURGEON LAWRIE has done.[1]

And what bearing can the results of investigations so confused and incoherent in character have on the great question of the action of chloroform on the human heart? The word incoherent, indeed, is a just and truly accurate qualification by which to describe a process of reasoning that applies such results in an analysis of the effect of chloroform on man. But, not even if these results were accurate could they have any practical bearing. To use a legal phrase, they are facts not relevant to the issue, which is the action of chloroform on man; nor are facts relevant to each other.[2] For even if we look at the bare results of these cross-circulation experiments the relation of cause and effect is not very clear. And chloroform never could, under any possibility, be administered to man as DRS. GASKELL and SHORE have administered it in their experiments. And until they succeed in doing this we may safely deny the validity of their method and results.

EDITORIAL COMMENTS.

Achillodynia.—SCHÜLLER (*Wiener medicin. Presse*, xxxiv, 7, p. 241) expresses the opinion that the symptoms of achillodynia (see THE MEDICAL NEWS, Feb. 18, 1893, p. 187) are dependent upon inflammation of a small synovial sac situated between the tendo Achillis and the tubercle of the os calcis. Gonorrhea was present in most of the cases under his observation. A tendency to flat-foot manifested itself after the disease had existed for some time, in consequence of the peculiarity of the gait adopted. The best therapeutic results were obtained from direct injections of a ten per cent. suspension of iodoform in glycerin, with an antiseptic dressing, followed by absolute rest for a week. In recent cases rest, with inunctions of mercurial ointment, sufficed. In obstinate cases incision, with evacuation of the contents of the synovial sac, was practised. If gonorrhea be present it must be relieved.

ROSENTHAL (*Wiener medicin. Presse*, xxxi, 10, p. 366) repudiates the views of Schüller and suggests that in some cases the symptoms of achillodynia may be dependent upon the presence of a neuroma between the tendon and the subjacent structures. He reports an illustrative case, in which, however, the symptoms were unilateral.

[1] THE MEDICAL NEWS, January 14, 1893, p. 53.

[2] Sir James Stephen: "A Digest of the Law of Evidence," Introduction, p. xii.

The painful affection of the feet described by MORTON (THE MEDICAL NEWS, June 20, 1891, p. 704; Oct. 8, 1892, p. 406), and the pododynia of Gross (*System of Surgery*) are different, though, perhaps, allied disorders.

MILLS (*Journal of Mental and Nervous Diseases*, April, 1888, p. 6) has briefly referred to a case which appears to belong in the category of achillodynia.

Temporarily Overridden.—The committee of the New York Academy of Medicine, which went to Albany to advocate a sensible, honest, and scientific plan of dealing with the Croton-water supply, has been contemptuously disregarded by the legislative rulers of this ring-ridden city and State. The committee proposed a commission of five scientific experts, who should be fitted by knowledge, experience, and public interest to deal with the problem in such a way as to prevent the pollution of the water-supply, and thereby a possible appalling calamity. The committee vainly urged that "The history of every cholera-epidemic has been the same, and no sane person doubts but that with an unguarded water supply for the city of New York, and a few cases of cholera among, for example, the Italian laborers employed on railroads and other works in Westchester, Dutchess, and Putnam Counties, it will be not alone twenty or fifty thousand inhabitants of this city who will perish, but we shall have established here in the United States an uncontrollable and inexhaustible reservoir of disease whence by every known line of travel the epidemic will spread to the furthest confines of the country."

The Senate thereupon passed the Ring's bill, and Tammany laughs at the defeat of every consideration of decency and public rights. Such displays are plainly the beginning of the end. The community will hardly endure much gambling with its health and life.

The Modern St. Peters.—The physicians, the homeopaths, and the eclectics of Connecticut have united to try and get some kind of a law passed that shall prohibit the State from becoming the Scamps' Asylum for all of the medical quacks and frauds driven out of other States. These, of course, made quite a "respectable" showing at the hearing of the measure. One of the arguments used was drawn from the Bible story of St. Peter and the lame man in the Temple. "If," said this wonderful advocate, "there had been a medical practice bill then, some one of the regulars would have said, 'Peter, have you a certificate from the health board of Judea?' 'No.' 'Peter, have you passed an examination in anatomy, physiology, medical chemistry, obstetrics, hygiene, surgery, pathology, diagnosis, and therapeutics, including practice and materia medica?' 'No.' 'Then we'll fine you $100 for treating this man without a certificate, and if we catch you doing it again we'll fine you $200 and give you six months in the Jerusalem jail.'"

The comparison of the modern medical mountebank with St. Peter might more truthfully, if not more modestly, have been limited to the fact that whereas Peter is reported to have lied three times, his would-be-imitator has never been known to tell the truth.

The Central Hospital of Philadelphia, just established at the corner of Broad and Race Streets, has instituted an innovation in its administration that is worthy of all praise and imitation. This consists in holding evening clinic-services from 5.30 to 8 o'clock, for out-patients. It is noteworthy that in all the popular zeal for charity and medical help of the poor, it has escaped attention that for a working man or woman to quit work to attend the dispensary in the daytime, often really puts him or her to serious inconvenience and to a greater expense in lost time than would result from the call at the physician's private office. A large proportion of dispensary patients have such slight ailments, or they consider them so slight, that rather than lose time from work, they neglect to seek medical advice until the disease has become serious. Taken in their incipiency many affections are aborted. The evening service thus becomes a true charity, and the remarkable success of the Central Hospital clinics, even in these first weeks of the work, is proof that the public perceives the motive of true philanthropy and the skill of the physicians—a most excellently chosen corps—in charge of the clinics.

Infanticide in Private Lying-in Houses.—Coroner Ashbridge, of Philadelphia, says that infanticide in the city is rapidly increasing. The increase in public cases of exposed children, etc., is manifest, but he plainly says that the concealed cases are still more rapidly growing in frequency. "Most infanticides are traceable to the private, unlicensed, and practically irresponsible lying-in houses with which this city swarms." He urges that all these houses should be put under legal surveillance, and that, furthermore, a public lying-in hospital be established. This is one of the most terrible problems that civilization has to face. It is clear that with the assumption by the public of the care of illegitimate children, the number of the illegitimate will tremendously increase; at the best it is a doubtful remedy suggested by Mr. Ashbridge. Whether the misery of infanticide is greater than that attendant upon a large number of illegitimate births, with the lessening of the sanctity of the marriage tie, is a question demanding great care in the answering.

Municipal Cleanliness.—By a largely increased mortality New York is learning anew the punishment of filthiness. Although the statistic lessons may not be as clear and striking elsewhere, the law must hold good that cleanliness is not only a matter of esthetics, but also a matter of life and death. Chicago, with her 3400 or more deaths within two years from typhoid fever alone, preaches the same eloquent lesson as to the relative value of cleanliness and of godliness. It is time, and past the time, that we set about a vigorous municipal house-cleaning. "It is an ill bird that fouls its own nest." It is almost incredible that with all our civilization we have not practically solved the simple questions of the removal and disposal of our own filth, but that great cities make sewers of their rivers and drink the diluted and diseased excreta.

Cholera and Water-supply.—The population of Hamburg and of its neighboring town, Altona, is about 750,000. Both cities make the river Elbe their common sewer. The water-supply of both is drawn from the contaminated river, that of Altona being more deeply and certainly

polluted than that of Hamburg. In Hamburg, last year, there were about 18,000 cases of cholera, with 7611 deaths reported, but Altona escaped with 562 cases and 328 deaths. It is believed that the escape of Altona is due to the fact that the more filthy water was comparatively freed from disease-germs by filtration through sand beds before it enters the city pipes. The less noxious water of the Hamburgers was not sand-filtered. The lesson is so clear that extensive filtration-works are being erected at the Hamburg intake.

Precocity Extraordinary.—Dr. Hopkins, of Thomasville, Ga., reports the case of a child, four years and three months of age, who is four feet and three inches high, weighs ninety pounds, with corresponding development of all the bodily organs. Attention is called to the boy of Salamis described by Pliny, who, within his life of seven years, was infant, adult, father, old man, and corpse. When one reflects upon such facts, one is appalled by our physiologic ignorance of the fundamental conditions and causes of our being. The mysteries of heredity and of corporeal development are so utterly impenetrable that the glib conceit of some philosophers, who doubt of nothing, is beyond contempt or pity.

The Prevention of Cholera in Minnesota.—A clean-cut law has been passed by the Legislature of Minnesota, providing against the importation, by transportation companies, of those infected with cholera or other infectious disease. The State's sanitary officers are empowered to detain, in quarantine, all vessels or railway conveyances in which such diseases may be found; to disinfect and fumigate at the expense of the railway or ship company; to fine and punish carelessness on the part of the companies, to isolate the passengers and their effects, and otherwise prevent the importation within the State of those affected with contagious disease.

Scandal-mongering Coroners.—A poor girl kills herself, and to feed the voracious appetite of the filth-loving public the coroner and his physicians divulge medically doubtful, and morally pernicious, details of the post-mortem table. What human right have physicians to increase the agony of the parents and the monomania of the salacious by such betrayals of trust? Members of the profession who thus besmirch us all should be told by their fellows what is thought of them.

Trichinæ in Hogs.—According to the investigations of the Laboratory of Natural History of the University of Iowa, the animals showing the largest number affected with trichinæ—about one in every ten—are those fed on slaughter-house offal. The next in order are the hogs kept in pens by private families. Those that roam large fields and that are fed on corn are almost entirely free.

Experiments with Cholera-Germs.—Two or three months ago Dr. Hasterlik, of Vienna, together with four others, for purposes of experiment swallowed doses of pure cultures of cholera-spirilli. In some, diarrhea and a slight rise of temperature followed, but all recovered without serious illness. The bacilli were found in the excreta in each case.

Education of the Deaf and Dumb in England.—There seems to be a hopeful outlook in England for education of the poor deaf and dumb, at the public expense. A bill will soon be introduced to this effect. The number of these unfortunates is increasing.

The Medical Profession of Cincinnati, O., has been aroused as to the duty of harmony and organization. An enthusiastic meeting, largely attended, has resolved to secure a permanent meeting-place, and funds therefor were subscribed.

SOCIETY PROCEEDINGS.

THE NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 7, 1893.

DR. M. ALLEN STARR, PRESIDENT, IN THE CHAIR.

DR. FREDERICK PETERSON presented a case of Clonic Spasm of the Muscles of Mastication. The patient was a woman, fifty-seven years old, who six years previously had her upper teeth removed and replaced by artificial ones. The first set did not fit well, and a new one was substituted. The spasm developed as a result of the manipulations about the mouth, and of the necessity for keeping the mouth open for long periods of time. When sitting quietly and not using the muscles of the jaw, there was a continuous clonic spasm of the masseters, temporals, and pterygoids. The jaw opens and shuts slightly, and moves from side to side. The chief difficulty, however, is encountered in attempts to speak; then the mouth opens widely and there is a subluxation of the jaw downward and forward. During the first six months the mouth would not close at all, excepting at night, when the spasm relaxed.

Dr. Peterson said that while tonic spasm of the masticatory muscles, or trismus, is quite a common symptom, the condition presented in this case is very rare. As regards treatment, atropine, hyoscine, conium, and electricity were used perseveringly, without any noteworthy effect. Latterly, duboisine sulphate, in doses of gr. $\frac{1}{100}$, three times daily, has afforded much relief by quieting the spasmodic movements almost wholly at times. In addition, the woman wears an apparatus that keeps the jaws in apposition, and allows her to talk between her teeth, without the uncomfortable tonic spasm of the depressors of the jaw, although the clonic movements of the masseters and pterygoids may keep on as before.

DR. WILLIAM M. LESZYNSKY stated that he had seen a case of clonic spasm of both platysmæ, following prolonged manipulation of the lower jaw by a dentist. The spasm lasted only three or four days. Slight spasm of the muscles of the jaw after dental operations is not uncommon.

DR. EDWARD D. FISHER presented a case of Rhythmical Spasm of the Extremities. The patient was a woman, forty-three years old. The attacks had taken place for about a year. The spasm is sometimes confined to one or both arms, or to the lower extremities, or the motion may involve all the limbs at the same time. The attacks come on spontaneously, and last about five minutes. A number may occur during the day, or the patient may remain free for a day or two. The muscles are becom-

ing hypertrophied and more rigid, and it is difficult to bend the elbow or the arm. The woman complains of fatigue. Various methods of treatment, including hypnotism, have been employed, but without apparent effect. It seems impossible for the woman to control the spasm. There is no analgesia. Hysteria was thought to be the basis of the attacks.

DR. J. E. CULVER read a paper on "Innervation and the Functions of the Sympathetic Nerves." He reviewed at length the distribution and functions of the sympathetic nervous system, and traced the relationship between its disturbed innervation and the interference with respiration, oxidation of the blood, and other physiologic processes.

DR. WILLIAM H. THOMSON read a paper on "Basedow's Disease." He stated that the progress of pathology often illustrates the disadvantage of the premature naming of diseases after some common or prominent symptoms, for further knowledge may show much wider relationships than were at first suspected; and in some cases these symptoms may be absent. Under such circumstances the symptomatic name may operate to prevent a correct diagnosis. The name exophthalmic goiter has had much influence in preventing the recognition of Graves's disease in many instances, and still more in confusing the views as to its pathology. The conception of some textural lesion in the nervous system to account for the exophthalmos and goiter has diverted investigation and speculation, in seeming forgetfulness of the fact that these symptoms are not essential to the affection, for they may exist in the absence or be absent in a case of Graves's disease. A safe rule to follow in the study of pathologic problems is to seek first for the most constant characteristics of a given affection rather than for the most obtrusive ones. Thus, the most uniform condition in Graves's disease is what may be correctly described as a state of marked agitation. In many instances this is for a long time a purely physical state, not involving the mind or the spirits, and yet the patient acts as if greatly alarmed about something. As a consequence, many writers consider fright a leading cause of the disease. We are thus at the outset diverted from the study of a characteristic condition to that of an occasional element in the clinical history of the affection.

Dr. Thomson then detailed the histories of eight consecutive cases of Graves's disease. In none was fright or other emotion an element of the clinical history. With two exceptions, all were unusually free from causes of mental strain or depression. Exophthalmos and goiter were absent in one case; exophthalmos alone was absent in five. Goiter was absent in one, while in another it was only slightly present late in the disease. Both exophthalmos and goiter were marked only in one case. In all the cases there was pronounced tachycardia and muscular tremor. Emaciation was marked in five and moderate in three; in four, imperfect inspiratory power was noticed.

The rapidity of heart-action and the muscular tremor are the first symptoms to develop and the last to disappear, and, together, they constitute the most invariable elements of the disease. Attention should, therefore, be particularly directed to them as the most closely related to its pathology, and the most important practically—as the earlier the disease is recognized, the better for the patient. A paralytic lesion, involving the common nucleus of the glosso-pharyngeal, vagus, and spinal accessory nerves, and extending to the neighboring vasomotor center in the medulla, would account for the whole group of symptoms that make up the picture of Graves's disease. Simple irritation of the lower branches of the glosso-pharyngeal and of the superior laryngeal nerves is sometimes accompanied by general muscular tremor. Such a bulbar lesion would also explain the tachycardia and the universal relaxation and throbbing of the systemic arteries. It would also explain the interference with the inspiratory expansion. Such a lesion would not, however, account for the exophthalmos or the goiter, and actually evidence is wanting of a constant textural lesion in the medulla, either of the centers mentioned or of other parts. No characteristic anatomic change has yet been discovered which can be causally associated with the genesis of Graves's disease, and the origin of the malady must be looked for elsewhere. In this connection clinical experience may furnish aid. Persistent diarrhea is a common symptom in Graves's disease. In the cases reported, astringents and other drugs had little effect in checking the diarrhea, while a change of diet at once brought about an improvement in all the symptoms.

Dr. Thomson stated that he mainly relies on the dietetic treatment of Graves's disease, and with such favorable results that he has little doubt that a specific disorder of intestinal (in distinction from gastric) digestion is the primary factor in the genesis of the affection. While a structural lesion in the medulla that would account for the phenomena of Graves's disease is almost inconceivable without involvement, sooner or later, of all the vital functions of that important part, particular functional derangements, produced by toxic agents of intestinal origin, are just what might be expected; for nothing is more characteristic than the narrowly selective operation of functional nervous poisons, which may go on for years, as in the case of opium, affecting certain functions, without producing either progressive changes in them or extension to other functions. One fact in Graves's disease which points much more distinctly to a digestive disorder than to a structural nervous lesion is that it occurs in women about ten times as often as in men. That the digestive apparatus in women is subject to special disorders is well known.

Dr. Thomson stated that he has not yet seen a severe case of Graves's disease in which diarrhea was not, sooner or later, a pronounced symptom. As regards the diet in these cases, the amount of meat taken should be restricted, and milk, in some acceptable form, should be substituted. Medicinally, intestinal antiseptic remedies are to be employed, together with the tincture of strophanthus as a vasomotor tonic.

DR. E. C. SEGUIN expressed the belief that while there are undoubtedly cases of Graves's disease in which one or two of the three prominent symptoms — exophthalmos, goiter, and tachycardia—are absent, the number of cases in which the principal symptoms are those relating to the circulation had been rather exaggerated. The cases in which the only gross symptoms are the rapid heart-action and the tremor are comparatively rare. On the other hand, there are cases which present these

symptoms, to which he would hesitate to give the name Graves's disease. Many cases of disease of the heart, with dilatation or tachycardia, are likely to be associated with muscular tremor and considerable nervousness. There are other symptoms to assist in arriving at a diagnosis of Graves's disease. One is the character of the pulse. The mere fact of the pulse being rapid is not in itself characteristic of Basedow's disease; it should possess a quality of tension and smallness which to the experienced finger is of value in making the diagnosis. Then, again, the temperature, taken in the axilla, is invariably raised from one-half to one degree F. As to the pathology of the disease, the theories as to the location of a lesion in the central nervous system or in the medulla are not satisfactory. As to locating the general cause of the disease in the intestinal tract, no positive conclusions can be drawn, for the reason that diarrhea is by no means a frequent symptom in Graves's disease. Furthermore, the diarrhea does not appear to be fermentative in character; it is, on the contrary, of a paralytic nature, the evacuations being large, liquid, and frequent. Dr. Seguin referred to the value of aconitine in treatment.

DR. B. SACHS stated that he has found the "rest treatment" extremely beneficial, the heart's action becoming better and the goiter diminishing in size. In addition to rest, he puts the patient on a light diet, consisting principally of milk and eggs.

DR. MARY PUTNAM JACOBI referred to three cases in which depressing emotions had preceded the development of exophthalmic goiter. In one of these, a very severe case, the patient was a woman, aged twenty-two years, whose marriage engagement was broken by the sudden death of her *fiancé*. She rapidly developed the three typical symptoms of Graves's disease, with intense anorexia and diarrhea. She remained in a state of great prostration for six months, and subsequently recovered after marrying somebody else. Following her second pregnancy her symptoms reappeared. She was at that time living almost entirely on champagne, which seemed to greatly intensify the symptoms. The diarrhea did not appear to add to her prostration. The patient was put on a meat-diet, and the pulse rapidly fell from 150 to 90 per minute, and she regained her strength. In another case, occurring in a woman forty-two years old, the symptoms appeared after prolonged family troubles. The third case was also in a woman, a domestic servant, who developed the symptoms after prolonged nursing of her mistress, to whom she was much attached.

DR. JOSEPH COLLINS said that if a toxic origin were ascribed to exophthalmic goiter, the prognosis would be less unfavorable than it is. In some experiments he has found that complete extirpation of the thyroid gland is almost invariably followed by death. This would controvert the idea that the function of the gland is a metabolic rather than a secretive one.

DR. A. D. ROCKWELL referred to the value of digitalis in cases in which there is a weakness of the myocardium; he has found the drug very serviceable, in combination with iron, zinc, and ergot. He also referred to the value of electricity; in order to do any good, the current must be sufficiently powerful. In reply to a question, Dr. Rockwell said that the diminished resistance to the electric current is probably owing to the perspiration and to the better conduction due to the rapid circulation.

THE PRESIDENT expressed the belief that no explanation thus far given will cover all cases of exophthalmic goiter, and it is doubtful that a single explanation will be found for all cases of any functional nervous disease. In two cases of Graves's disease recently under observation, sudden fright was too immediate to be anything but causative. One of the patients, a woman, saw her baby fall from a second-story window. She was immediately seized with palpitation, and within two weeks developed exophthalmos and goiter. She presented an interesting symptom that has been referred to by Charcot, a sudden giving out of the limbs—astasia. After such a collapse she is perfectly able to rise and walk away. In another case, the symptoms developed suddenly in a patient after she had narrowly escaped being run over by a street-car.

DR. THOMSON, in closing the discussion, said that he did not mean to imply that fright and depressing emotions do not repeatedly furnish the occasion for the first development of the symptoms, but it is important to separate occasions from causes. The tremor of Graves's disease is characteristic; it is different from the tremor of any cardiac affection. It is not maintained that there is a lesion in the medulla to account for the symptoms; the absence of such a lesion gives support to the toxic theory. The relapsing nature of Graves's disease is opposed to the idea of a structural lesion.

Cases attended with a pulse of high tension are associated with albuminuria. In Graves's disease there is a dilatation of the arteries throughout the body, and dilated arteries and a pulse of high tension do not go together. The elevation of temperature is slight, such as may be present in any serious neurosis, but it bears no proportion to the rapidity of heart-action, and the affection may be essentially regarded as a non-febrile disease.

CORRESPONDENCE.

YELLOW-FEVER INOCULATION.

To the Editor of THE MEDICAL NEWS,

SIR: The sharp practices engendered by the associations of Washington City have enabled a prominent member of the medical profession in this country to forestall and checkmate the legitimate outgrowth of the facts presented by Domingos Freire in regard to the results of yellow-fever inoculation in Brazil. But the old maxim of *magna est veritas et prevalebit* still holds its place in the developments of the efficacy of inoculation as a preventive of yellow fever.

The data presented in my article entitled "Facts *versus* Fiction Touching Yellow-fever Inoculation," which appeared in *The Journal of the American Medical Association* for March 22, 1890 (reprints being on hand) are fully corroborated by a report of the recent work of Domingos Freire in the city of Rio de Janeiro, where the good results of inoculation are clearly shown. The following is translated from the *Jornal de Brazil*, of Rio de Janeiro, January 28, 1893:

"VACCINATION AGAINST YELLOW FEVER.

"Dr. Domingos Freire writes us: 'The total number of inoculations for the prevention of yellow fever during

the epidemic of 1891-92 was one thousand, distributed as follows: 81 in Nitheroy; 28 in Barra Uansa; 38 in Rezende; 34 in Paralujba do Sul; 818 in Rio de Janeiro.

"'There were 377 foreigners and 623 natives. The foreigners were of the following nationalities: Portuguese, 220; Italians, 81; Spaniards, 30; French, 29; Austrian, 5; Argentine Republicans, 3; Eastern, 3; German, 1; Englishman, 1; Pole, 1; Russian, 1; Swede, 1; North American, 1.

"'Of the Brazilians inoculated the following provinces were represented by the number opposite the name:

"' Rio de Janeiro (city)	399
" " (state)	123
Minas Geraes	26
Parahyba do Norte	16
Rio Grande do Sul	14
San Paulo	15
Espiritu Santo	3
Pernambuco	4
Alagoas	3
Matto Grosso	2
Ceará	2
Pará	1
Paraná	1
Bahia	13

"'Nearly the total number were in the most probable condition to contract the disease. The great majority had been in Rio de Janeiro varying from a few days to four years. Then, in calculating the lowest period of receptivity, it is put down as five years' residence in the infected place as the minimum period for acclimatization. The individuals inoculated lived, for the most part, in the streets where the disease had become most widely developed.

"'The mortality among those inoculated was 0.8 per cent. (eight-tenths of 1 per cent.).—During the same epidemic there died about four thousand people who had not been inoculated. From 1883 to 1892 there have been 11,881 inoculations to prevent yellow fever, with a mortality of 0.5 per cent. (five-tenths of 1 per cent.).

"'The results of the inoculations show that this prophylactic means has a real efficacy.'

"Shortly we expect to publish in all their details the statistics for 1891–92."

I am, Sir, respectfully yours,

J. MCFADDEN GASTON, M.D.

ATLANTA, GA.

NEWS ITEMS.

Section on Hygiene, Climatology, and Demography of the Pan-American Medical Congress.—Persons proposing to present papers before this Section are requested to communicate with either of the undersigned *immediately*, that titles of subjects may be properly classified for the program of the proceedings of the Congress. The only limitation as to subject matter is that it shall have a sanitary, climatologic, or statistical bearing. Members of the Section on State Medicine of the American Medical Association, the American Public Health Association, the American Climatological Association, the American Academy of Medicine, and of State and Municipal Boards of Health are especially invited to contribute the results of their several experiences. The languages of the Congress being Spanish, Portuguese, French, and English, papers may be presented in either, to be translated in the others, for which reason their text should be in the hands of the Secretaries at the earliest possible date. Albert L. Gihon, M.D., President, 145 East 21st Street, New York City; Pedro José Salicrup, M.D., Secretary (Spanish), 129 East 17th Street, New York City; Peter H. Brice, M.D., Secretary (English), Toronto, Canada.

International Semmelweiss Memorial.—Subscriptions are solicited to the memorial in honor of SEMMELWEISS, to be erected in his native city, Budapest, in recognition of his services to antiseptic midwifery (*Die Aetiologie der Begriff und die Prophylaxis des Kindbettfiebers*, 1861). The American members of the committee having the project in charge are: Dr. H. R. Bigelow and Dr. Barton Cooke Hirst, of Philadelphia; Dr. John S. Billings and Dr. A. F. A. King, of Washington, D. C.; Dr. E. W. Cushing, Dr. C. M. Green, Dr. Henry O. Marcy, Dr. L. W. Richardson, Dr. A. D. Sinclair, and Dr. W. Storer, of Boston, Mass.; Dr. W. W. Jaggard, of Chicago; Dr. J. H. Kellogg, of Battle Creek, Mich.; Dr. W. W. Potter, of Buffalo; and Dr. A. J. C. Skene, of Brooklyn. Dr. J. Elischer, Petöfi-tér I, Budapest, Hungary, is the Treasurer, to whom subscriptions are to be forwarded, or to any of the American members of the committee, or to the editorial office of THE MEDICAL NEWS.

Anatomical Section of the Pan-American Congress.—The following physicians have been appointed members of the Advisory Council: Dr. F. Mall, University of Chicago, Chicago; Dr. Charles S. Dolley, 3707 Woodland Ave., Philadelphia; Dr. Edward K. Dunham, Carnegie Laboratory, New York; Dr. Elizabeth B. Bundy, Woman's Medical College, Philadelphia; Dr. Wm. M. Gray, Army Medical Museum, Washington; Dr. H. C. Tinkham, University of Vermont, Burlington, Vt.

The American Climatological Association will hold its tenth annual meeting in Philadelphia, May 25th, 26th, and 27th.

Members having papers to present are requested to communicate with the President, Dr. R. G. Curtin, 22 S. 18th Street, Philadelphia, or the Secretary, Dr. J. B. Walker, 1617 Green Street, Philadelphia, at as early a day as possible.

The Section on Dermatology and Syphilography of the Pan-American Medical Congress has been fully organized, with Dr. A. H. Ohmann-Dumesnil, of St. Louis, Mo., as Executive President, and Dr. William S. Gottheil, of New York, as English-speaking Secretary, and Dr. John Forrest, of Charleston, S. C., as Spanish-speaking Secretary.

New York Eye and Ear Infirmary Reports is the title of a volume of original articles by the members of the surgical staff of the New York Eye and Ear Infirmary, successive numbers of which will appear as the material shall be collected. Part I of Volume I contains 111 well-printed and well-illustrated pages.

Error.—The title of Dr. Tyson's paper, p. 307, THE NEWS, March 18, should have been "Two Cases of Cystin Calculus," instead of "Two Cases of Cystic Calculus."